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A PUBLICATION PRESENTING ASSOCIATION AND CHAPTER ACTIVITIES



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1942 FOLLOW-UP and GUIDE to Exhibitor Products

June 1942

Our Men in the Armed Services

HENRY S. WASHBURN*
Past President, A.F.A.

As WE gather here this evening, surrounded by every comfort, surrounded by every protection, our patriotism is aroused by the singing of our National Anthem. From all our Convention activities we are stirred to the point of determining to put more effort into our war task. We gain inspiration from this atmosphere.

I want you to project your thoughts for just a moment to the men of our armed services who are fighting tonight to preserve for us the security we now enjoy . . . who are fighting to make secure for us the continued right of freedom of speech, to secure for us the continued right to worship as we choose . . . who are fighting for the security of our very bodies.

What is the inspiration that causes the men of our Navy to place themselves between the merchant ships they are convoying and a greatly superior enemy force, with the purpose of continuing in action until their guns go under the water, to provide time for the ships under their care to scatter and to possibly find safety?

What is the urge that sends the man of our air forces up into the skies against heavy odds, to ward off aerial attack on our land and sea forces?

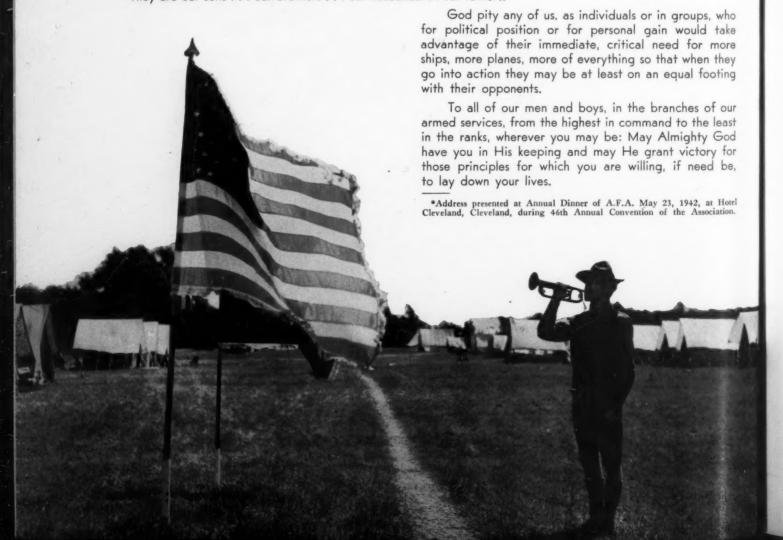
What was the source of inspiration to the men of Bataan, fighting against impossible odds, that caused them to continue in action to provide more time for us to send munitions and supplies to their brothers in arms on other fronts?

They would answer these questions with a shrug of their shoulders or with an evasive reply intended to belittle their efforts.

If it were possible for us to look into the innermost corners of their subconscious selves, the answer we would find would be this: "If the carrying of this war to a successful conclusion requires that some of us lay the supreme sacrifice upon the altar of liberty, it is not important how we die, it is not important when we die. The important thing is: What is the purpose of our living? The important thing is: What are the principles to which we have dedicated our lives?"

These men of ours are living the highest ideals of our citizenship. They make visible to us the soul of America.

They are our sons . . . our brothers . . . our husbands. . . our fathers.



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Why Maximum War Production Demands Maximum Plant Protection

By Rear Admiral C. H. Woodward* (Retd.)

This address was presented by the author during the 46th Annual Convention of American Foundrymen's Association in Cleveland, before a special meeting of Plant Defense and Protection, held April 22, 1942. The address, and the discussion that followed (also printed below), emphasized the importance of the new code of Recommended Practices for Protection of Life, Personnel and Production in the Foundry Industry. This code, prepared by the A.F.A. Industrial Hygiene Codes Committee, under chairmanship of Jas. R. Allan, has been approved by the Office of Civilian Defense.

THE UNITED STATES has been engaged in total war for more than four months—since the treacherous attack made by the Japanese on Pearl Harbor on December 7, followed within a few days by declarations of war against Nazi Germany and Fascist Italy.

Surprising as it may seem, this fact seems not yet fully recognized by the people of some sections of this country, particularly here in the central and mid-western States. Being geographically situated so far from our two ocean frontiers—which our pacifists and isolationists

have so long preached as being invulnerable barriers against invasion—they still harbor the wishful, although entirely erroneous, illusion that "it can't happen here," regardless of the extraordinary and previously unheard of happenings in other parts of the world so frequently during the past two and a half years.

Everyone Must Help Win

Total war demands the mobilization of our whole national strength. It means that every citizen of these United States, wherever located or however engaged, must exert his utmost effort to defeat the Axis. Victory comes only one way—for you and me and all of us to do everything within our power to help keep the sinews of war moving toward those who are using them.

This applies equally to commercial, industrial, labor, professional and all other organizations. As such they must also share in the sacrifice and effort which alone will bring victory as quickly as possible. The public is slow to grasp the urgency of these facts, due principally to the isolationist influence which has held sway so long in this country.

Many believe that because of our vast resources of manpower, machines, ingenuity and courage we are bound to win the final victory, no matter how serious may be our early military and naval defeats. Many public speakers have elaborated on



cally prophesied as to our ultimate triumph, without giving a serious thought to what steps are necessary to bring about such a result. National confidence is a virtue, but when it leads to the slackening of effort—as such speeches surely do—it becomes a vice.

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Time an Essential Factor

Although we have magnificent resources and manpower, unequalled mass production machinery and skilled men to operate it, these all count for little in total war unless we use them efficiently and to the

maximum limit. The enemy will not wait for us to get in full gear. On the contrary, he will do his utmost while we continue to muddle along, in the knowledge that the vital military factor, Time, is on the side of the one who uses it most effectively.

This will probably be a long, hard, costly and bloody war. Its duration depends to a large extent on how hard we work and how soon we begin to work our hardest. Unfortunately, there are still some among us who deeply resent interference with "business as usual," and who put profits and post-war problems ahead of urgent military needs. By the same token it is equally unfortunate that there are still some among us who, through useless jurisdictional labor disputes and wild-cat strikes, cause the loss of thousands of man-hours in the manufacture of vital war material.

Men of either type, and for purely selfish motives, are definitely delaying the production of tanks, planes, guns and ships, and other essential war supplies, and thereby retard the country's military preparations. Meanwhile, on the firing line overseas, or in their ships engaging the enemy in the four corners of the earth, our well-disciplined and heroic soldiers and sailors are valiantly fighting Uncle Sam's battles with the weapons provided.

These men never question the amount of their wages, nor the hours they must fight, nor do they protest the orders under which they serve—and risk their lives—as do some of their friends engaged in safer pursuits in this country. Think

the fighting ability of Americans and optimisti-

^{*}Assistant Director of Civilian Defense and Member for Navy Department on Board of Civilian Protection, Office of Civilian Defense, Washington, D. C.

that over, and you must realize that any sacrifices we have made so far, are small indeed in comparison.

"We Can Lose This War"

Modern wars are won only by a people who, as a united nation, have the courage and the will to win, and who put their all into the effort. Internal dissensions, moral weakness and failure to put forth our best efforts cause unnecessary delays which will play a decisive part in determining the outcome of this war, and if carried to an extreme may even wreck the nation's chance of victory. Don't be fooled. We can lose this war.

On the other hand—and regardless of the early brilliant successes of our enemy in the field, on the seas, or in the air above—properly coordinated team work between Industry and Labor in production and ever more production in the shortest space of time, ultimately will provide our constantly growing military machine with the superior equipment against which the enemy cannot hope to compete successfully.

Although the richest nation on earth and the strongest potential military power, unless we get on a real wartime basis soon, we cannot win. We can't fight this war in the future. Only what we do now is that which counts—not next week, next month or next year, but now. As Donald Nelson has so clearly pointed out, a tank or a plane or a gun today is worth ten tanks, ten planes or ten guns next month.

We only have to look at Japan's record to see the urgency of this matter. In less than four months the Japanese juggernaut in its southern sweep has successfully crushed all Allied opposition from Shanghai down to and including the Dutch East Indies, and has seized all strategical points in the Southwest Pacific . . . a military feat which, prior to December 7, seemed absolutely fantastic and beyond the realms of possibility.

As I said before and wish to emphasize by repetition, regardless of the great initial advantages gained by our enemy, if we throw our full strength into our preparations and sweep aside every artificial restriction on production without further loss of time, we can win. There can be no buckpassing, however, for we are all belligerents. The unforgivable sin is failure to do everything to win, and speed is of the essence. It is our war—all of us. It will be our victory.

Plants Must Be Protected

Being engaged in total war, we must not only consider production as the key to our military effort, but we must also give serious thought to the protection of the plants which produce the vital sinews of war. They must be well guarded against sabotage, fires and other unusual hazards, including air raids (the new hazard this war has brought), for it is against such plants the enemy is most likely to strike first and most often, as the usual procedure in the European war shows.

However, plant protection should by no means be limited to those concerns manufacturing military equipment and arms. It applies also, although to a lesser degree, to plants supplying the home defense legions with food, clothing, housing and other necessities of life.

It is a matter of common sense, then, that in every industrial area we prepare as quickly and as thoroughly as possible complete air raid protection for all plants. We know not when, where, or how hard the enemy will strike. The question of defense against air raids is one of the important problems at hand.

Air Raids Are Possible

Some will scoff at the idea that an air raid can be made on this particular industrial area. Don't be misled by erroneous information, for the answer definitely is, yes it can! Moreover, it is a part of Hitler's technique to do the so-called impossible, not only to catch the enemy unawares by a surprise attack, but more particularly to terrorize the people by his supposedly invulnerable prowess, in order that they will force the government to recall our Navy to protect our own shores and thus leave his U-boats free to work in the Atlantic—which, all strategists agree, would be to invite defeat.

We know that the Nazis have bombers with 4,500-mile range. That, in itself, permits an easy flight from Brest to Cleveland (3,400 miles), to Detroit (3,500 miles), or to Chicago (3,700 miles), with time to spare for pop calls on all three cities. Naturally, it would be only a token hit-and-run raid, and probably would be of the suicide type—although in the end the pilot might land and be taken as a prisoner of war, with all the implications of that role. Nevertheless, a bomb from such a plane could kill as many people and do as much damage as a bomb from any plane flying, say, from New York or another comparatively nearby place.

However, it is not at all necessary to sacrifice a skilled bomber's crew in any such suicide attack, even though the wrecking of vital industries in the heart of the country would be worth a dozen bombers to the Germans. Because of the vast expanse of the ocean and the relatively small space occupied by a ship-even a large vessel representing only a pin point—it is possible for an aircraft carrier to arrive undetected at some point 800-1,000 miles off our Atlantic coast and send off a flock of bombers with a fair chance of the majority returning after their raid. We ourselves are building planes which are capable of carrying a load of bombs to Europe and return, non-stop. It is reasonable to believe that the Germans are doing the same thing.

With these obvious facts before us, and realizing, from the experience gained in the European and Asiatic wars, to what extremes of utter ruthlessness the Axis powers go in their efforts to smash all resistance, even against non-combatants, we must prepare accordingly.

We have been forewarned of what may come. Why wait for the first bomb? Why not prepare against it now? How much time we have for such preparation, is anyone's guess, but with the rapidly changing world picture, there is little time to lose.

Civil Defense a Real Problem

Civilian defense against enemy action unquestionably is one of our major problems, as it still is in England after two and a half years of war. It concerns the protection not only of citizens of each community, but also the protection of vital plants in the immediate area. With specific regard to the latter I cannot over-emphasize the fact that the responsibility for such preparation falls directly on management. If this is an all-out war, it must be an all-out effort at production. There can be no splitting up of responsibility. It cannot be left for George to do it.

The Plant Protection Division of the Office of Civilian Defense has evolved, out of national and international experience, a simple and workable plan which, if adopted and adapted to your plant, be it small or large, will help overcome many of the difficulties. It must be emphasized, however, that this requires detailed organization and education of personnel, followed by frequent drills. No

one ever got burned by going to too many fire drills. No one can be over-drilled in air raid precautions. Proper organization is the key.

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As total war brings the conflict directly to our several communities, protection of the home front is essential—perhaps even more important than the military front, for that can be adjusted in case of a break, provided the home-front morale is high and every one is doing his bit to win. Should the home front crumble, however—because we have been too lazy, too disinterested, or too blind to take the simplest safety precautions—everything goes with it. We saw that in the case of Germany in the last war.

Total war thrives on helplessness and confusion. Against a strong, self-reliant population, properly prepared for total defense, it can never win. Gambling with total war is not like any other gambling in the world, for if you lose a gamble with total war, you will never get the cards in your hands again.

Discussion on Foundry Plant Protection

Chairman Jas. R. Allan*: This meeting on Plant Defense and Protection during the war is substituted for our usual convention program meeting on Industrial Hygiene and Health Protection in the Foundry. Today the protection of our plant is extremely important.

Because we are not having an Industrial Hygiene meeting this year, let us not forget that you should not let down on the control of occupational diseases in the foundry, because there is a time coming when we will start to lay off some of the employees we now have and they are going to stay on somebody's pay roll, and that is going to be by means of alleging partial or total disability. We don't want to have the silicosis racket we had during the last depression. Keep at your hygiene program and keep it going. It fits very nicely into the program we are going to discuss this afternoon.

Today we are at war, and an additional burden is placed on American industry to protect itself against sabotage, air raids, and to adequately prepare itself for blackouts.

We are particularly fortunate today in having two Navy members on our program. We heard Lt. Commander S. J. Singer† this morning, and this afternoon we are going to hear from Rear Admiral C. H. Woodward, who is in charge of Plant Protection in the Office of Civilian Defense. I am not going to attempt to give you a biography of Admiral Woodward. I think every President, from the Spanish-American War down, has decorated and awarded honors to our speaker. It is a marvelous record of service to our country. He has a real message for us that comes right from Headquarters.

At this time I want to introduce Rear Admiral C. H. Woodward, of the Navy Department, member of the board of the Office of Civilian Protection.

(Rear Admiral Woodward's address followed, after which Chairman Allan summarized the report of the Committee on Plant Protection During War Times, known as the Code of Recommended Practices for the Protection of Life, Property and Production in the Foundry Industry During the War.)

Chairman Allan: I am going to ask Lt. Commander Singer to come to the platform and help me in answering

some of the questions. Let's have a full discussion and take advantage of the talent we have from Washington to get at some of these things we are thinking about.

Member: Has the Navy made any plans for helping plants that have Navy contracts?

Lt. Commander Singer: That has gone through various stages. Up to December 7 the FBI made inspections of any plants which had contracts, either Army or Navy. The FBI became so busy after December 7 that the Army and Navy each took over part of it. Each had their own Plant Protection Division.

About April 1 an order came out that some of the Navy's Plant Protection Division was being turned over directly to the Army. Just what effect that is going to have at this moment, I cannot say, but if you have a contract with the Navy and you want some help, there is a district security officer in each naval district who will aid you. The Army, in general, is responsible for the security of all war production plants except for those plants specifically looked after by the Navy. The Office of Civilian Defense is responsible, in general, for the general plans and for the plants producing for civilians. If that next step occurs, namely, where the Army has taken over, an Army man will take over.

There is another place you can get a lot of good help. That is with your insurance company people. The insurance safety engineers are getting the information OCD is making available, and they have a lot of answers which you want.

Guest: Lt. Commander, we in the Cleveland Fire Department have received a number of inquiries as to the best means of extinguishing the incendiary or magnesium bomb, and they have repeatedly asked us about pitch or clay. Have the Government departments specified any definite means of combating this bomb?

Lt. Commander Singer: My information is based upon a great number of reports from England and upon a lecture given by Lt. Colonel Caldwell, who is in charge of the research work for the Army at Edgewood Arsenal: "Give me water, more water, and more water, properly applied, to control the incendiary bomb."

What you want is to prevent the spread of fire. What is the good of worrying about the bomb if the house is

^{*}International Harvester Co., Chicago. †Office of Secretary of Navy, Washington, D. C.

going to burn down? First, you want to prevent the spread of fire; second, to control the bomb.

The second method Col. Caldwell advocates is the use of sand. The danger with sand is the tendency to put sand on the bomb and forget about it. If you put sand on top of it—on a wood floor, for example—the incendiary bomb will burn downward, so it is just as important to get the sand underneath as to get sand on top.

Chairman Allan: I might suggest a visit to the Bureau of Mines booth down here in the Exhibit Hall. They have given a lot of thought to extinguishing magnesium bombs, and they are recommending coal pitch.

The Campbell Wyant & Cannon Foundry Co. has done a lot of splendid work in safeguarding. Mr. Beach of that company is here and I would like to have him answer a question. First of all, in identifying your employees and with armed guards and the use of watchdogs and so forth, you have done quite a bit. How long did it take you to accomplish the program so far?

E. W. Beach*: In the matter of employee identification, we have followed standard procedure by purchasing for our own use the required photographic equipment, a metal bound circular frame with the accompanying pin and the closing device for inserting the picture. This is worn as an emblem of employment while on the premises. For employees who have occasion to travel, the same photographic equipment is used with full identification reproduced photographically and signed by the employee.

The watchman system of which Mr. Allan speaks was inaugurated in 1937 by our personnel director, W. J. Barclay, and was the beginning of armed uniformed watchman service which today consists of a captain, three sergeants and 38 watchmen. The use of dogs has been maintained since that date. Originally we purchased a pair of dogs and established a kennel in the plant yard, and while this method supplied us with well bred dogs it proved unsuccessful because through the changing of kennel keepers, the dogs lost the necessary one-man attention in training. For the past two years we have purchased full-grown, trained animals which are assigned to individual men and these dogs go back and forth with the watchmen to their homes. The idea proved valuable in two ways. First, as a potential protection for the officer, and second as companionship on the long property fence line beats.

Secondary boundary fences at several points within the property line fences have also proven satisfactory, in dividing the inside and outside watchman beats and saving time between call boxes. Several central watchtowers are used in connection with the floodlighting system as an aid to the property boundary fence lines.

Personally, and in behalf of our organization, I would like to express appreciation to Mr. Allan as chairman of the committee that has done such a splendid piece of work in bringing out this code of procedure in the matter of plant protection and safety. I have one question to ask Mr. Allan. You have told us something of vertical window glass protection. What can you tell us concerning expansive glass skylights such as our factory is equipped with?

Chairman Allan: Your glass roof problem is quite comparable to the vertical glass problem and should be treated about the same way.

You are also inspecting all the lunch boxes, in and out, aren't you?

E. W. Beach: All lunch boxes are examined at the gate as the employees enter. The procedure is as follows: There is a small table, 2 feet by 3 feet in size,

at the entrance. Most of the lunch boxes are of the standard metal type with thermos bottle top. The employee places the box on the table, removes the bottle, unscrews the top to show it contains liquid, and displays contents of lunch box to show it contains food only, and then passes on. Average time occupied is probably not more than six or seven seconds. Mr. Barclay encountered no opposition in setting up the procedure by selling the men on the idea that it was for the protection of themselves and their fellow employees. The paper bag type of package is discouraged.

All local and foreign truck drivers, without regard to how well known or how often they call, are obliged to dismount and register. They receive a slip which they surrender on exit by either of the main gates.

We are thoroughly convinced that the matter of uniformed guards has great value. Any idea of undue supervision was voided by promoting the thought that the uniformed guard is the employee's best friend.

Chairman Allan: These policemen are also armed, are they not?

E. W. Beach: The direct answer to your question, Mr. Allan, is 'yes.' Our policemen are fully armed and carry revolver and cartridges in the open by means of the Sam Brown belt. In picking the men for our force, Mr. Barclay has, as far as possible, employed ex-service men. A recent picture of our police force shows them to be a very sturdy group of guardians.

Member: Are the guards deputized?

E. W. Beach: They are all deputized by the county. At the gate is a sign in large readable letters stating that the watchman service at the plant is deputized by the County Sheriff's Department.

Lt. Commander Singer: In many communities they have trouble deputizing all their people. Where that happens, ask them to deputize at least one man.

Guest: The Cleveland Fire Department has been asked a number of times about blacking out flares from the cupolas in foundries or blast furnaces. I think I understood your instructions, as given in that manual, that you recommend tar chips be shoveled in on top of the charge as an effective means of blacking out flares. Is that correct?

Chairman Allan: That is correct. I have some photographs in my briefcase which I will be glad to show you after the meeting, if you want to see them.

E. O. Jones*: We have just started to have a watchman or officer at the gate. The guards are armed. We have not started inspecting the lunch boxes yet. We probably will. We have trained about 40 men in first-aid. We have trained the same number in our plant in fire control.

Chairman Allan: What percentage of your personnel is trained in first-aid?

E. O. Jones: About 5 per cent.

E. V. Vielhauer†: Where you have your own power plant and your load drops off due to a blackout, I have instructed our firemen in our foundry to bank the fires because you are going to have telltale steam escaping from the safety valve. When your load drops off in a hurry, that should be taken care of.

There is something else—this innocent-looking thermos bottle. What about that?

Chairman Allan: After all, that is a controversial subject. A lot of managements have not come to the idea yet that they are going to search the thermos bottle or lunch box. In the plants that produce a lot of small

^{*}Campbell Wyant & Cannon Foundry Co., Muskegon, Mich.

JUNE, 1942

^{*}Belle City Malleable Iron Co., Racine, Wis. †Plant Engineer, St. Paul Foundry Co., St. Paul, Minn.

expensive parts they find they are stopping a lot of theft through the inspection of the lunch box and thermos bottle, and they having them opened going out.

Lt. Commander Singer: One of the answers to the second question you asked is this: If they want to bring in these little pencil bombs they will get them in. The best way of controlling it is by a thorough investigation of your employees before you hire them. If you have a man looking for a job, you can properly say to him, "All right, let's have your fingerprints. No fingerprints, no job."

As to the people who already work there, if you put it to them as a matter of identification, you will find, to a great extent, that they will give you their fingerprints. If you make two sets of those prints and give one of them to the local police and ask them to send the other copy on to the FBI at Washington, they will secure a complete report on any particular man for you.

E. V. Vielhauer: All our men have been fingerprinted and prints have been sent in through the resident inspector, but it takes a long time for reports to come back. Unless you could fingerprint the men ahead, you would not have enough available men when you needed them. Of course, if there is any hesitancy on their part in being fingerprinted, I presume that is a give-away.

Lt. Commander Singer: That is right. The FBI before the war was handling quite a number of prints each day and this number has been tremendously increased; but that is the best way to do it. In some states your local police can give you information immediately. If the man has been only in that state, you can get a report immediately, but you are also interested in whether he has been in any other state, and some of these people do wander around.

Chairman Allan: I want to stress this fact, which I did not cover when I was briefing the code, that the Government recommends that all employees be finger-printed at this time.

Member: I notice a number of doctors are now recommending that everyone have identification tags. Has anything of that sort been covered in your code?

Chairman Allan: We haven't recommended it. Perhaps Commander Singer can tell you something about that.

Lt. Commander Singer: The Navy has given me an identification tag with my name, rank, type of blood, date of typhoid, and on the back of it is a fingerprint. They have also given me a card with my name, age and picture, height, weight, date, etc., and signed by the Chief of the Bureau of Navigation. In addition to that I have an identification card to get into my own office in Washington, issued by OCD. The idea of identification badges is excellent.

E. W. Beach: In regard to identification cards that are carried by officers in uniform of the Army and Navy used in making calls at our plants, we do not hesitate to ask that they be shown to us. In these days a uniform would be an easy thing to obtain, if that was all that was required to enter a plant for subversive reasons. Moreover, you are likely to find, if you do not ask to see the identification, that your system of plant entrance has been made the subject of unfavorable comment in the report of an officer's official visit.

Chairman Allan: The press in Cleveland this week mentioned that a lieutenant or captain was parading around this area for over a month, and finally they caught up with him in Buffalo, getting into all the plane factories without question. That is why I say that if you make it easy to get in, they report you. Make it hard for people to get in.

Guest: Has the Navy taken any steps in aiding local fire department officials in forming fire brigades in factories having no protection whatsoever? In one of my inspections out in the east end here, I have a man who has been using magnesium and machining it. He has had fires, and he hasn't even one extinguisher in the plant. My authority does not go into that plant and I cannot insist on it. I would like to know what the Navy could do about it.

Lt. Commander Singer: Is the Navy doing anything about insisting that a plant take fire precautions where the Navy has no interest in the plant? Unless this company has a contract with the Navy, the Navy does not even know the plant. Second, he must be in some municipality or county which has fire laws that should be enforced. Third, he undoubtedly has insurance, and the insurance inspectors will certainly jump on him if it is brought to their attention. There are various ways of forcing that man to do something about it. The Navy has no interest in the plant unless it is producing for the Navy. OCD is interested to the extent of wanting all plants protected and ready to minimize and restrict damage, but OCD has absolutely no power. All it can do is suggest and advise. It is up to gentlemen like yourself, who have responsibility, to take the initiative in doing what is recommended.

Guest: I wish to make it clear that I have been working outside my legal authority. This is not in the city of Cleveland; it is an outside municipality, and they will not give me the information as to whom they are manufacturing this material for. All I can do is to imply someone is pressing me to insist that he put in fire protection.

Lt. Commander Singer: I give you this suggestion. From your State Board of Fire Underwriters and your insurance groups you can find out who carries the fire insurance, and get them to work on it. If you think he is making something for the Army or Navy, write to the Army or Navy and tell them the condition. Say that it is outside the city of Cleveland, and that you would like to have something done. They will do it.

Chairman Allan: Your Local Ordnance District here probably can give you pretty full information as to the type of contract that particular employer has, and may be able to help you.

Member: Speaking of coal tar for blacking out cupolas and putting it over the charge, would you do that clear through the heat, or just during the blackout?

Chairman Allan: Just during the blackout. It takes two or three minutes to start generating smoke on top of a cold charge. When you get the warning, have the lumps prepared and start throwing them in. First of all, test it out and find out what quantity and at what rate you should throw in the tar. Have a trial blackout of that cupola ahead of time, so you are thoroughly familiar with it and know how to handle it during the emergency.

Member: May I ask what effect it has on the heat? Chairman Allan: None at all.

Guest: Will you tell me if they are using today, in warfare or bombing raids, any other type of incendiary bombs besides the phosphorus or magnesium type?

Lt. Commander Singer: The Germans have been using magnesium bombs, principally 2.2 pounds. The Japanese have been using thermite, principally about 35

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Socia *The pounds and 100 pounds. With thermite you have a fire and you want substantial apparatus to fight it. Magnesium bombs you can control by the rule of a spray upon the bomb and jet upon the surrounding area. There has been some phosphorus used. The English use what they call "calling cards," which are phosphorus.

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Colonel Caldwell, whom I mentioned a moment ago and who conducts all his experiments for the Army, said that in his opinion magnesium bombs have reached their highest point and that the enemy probably will go in for oil bombs. The Germans have dropped oil bombs, but they used a very cheap "used" oil, such as you get from a crankcase, and this did not give good results. The opinion is that oil bombs may be used.

Peter E. Rentschler*: Today I bought one of the A.F.A. Plant Protection Code books as prepared by Mr. Allan's committee, so I could run through it before this meeting. It is a marvelous job. We started out with the FBI Manual for Industrial Plant Protection, and then the Navy furnished us at various times with copies of its booklet, Plant Security Measures for Commercial Plants, which has been revised from time to time. However, this is the first job I have seen that gets the subject down to where anyone can run through a program rather quickly and know what to do. Each time the Navy revises its plant security measure procedures you get a new book, and you must go through it point by point to check where a change has been made, if any.

Campbell Wyant & Cannon, with a big organization, is able to have specialists do the various jobs, but in the smaller plant where the management is a sort of jack-of-all-trades and has to follow through all the details, this book the committee has gotten up looks as if it might have practically all the answers.

We have been fingerprinting for the civilian files our employees and even members of their families on a voluntary basis for a number of years. We have had the employees bring to the plant the members of their families and have sent the fingerprints to the civilian files at Washington. Thus, when we were requested by the Navy to fingerprint our employees, we had no difficulty whatsoever. Everybody came right along because they were accustomed to such procedure. I believe that for the most part, with the proper explanation to the individual of the advantage of being fingerprinted, the individual has no hesitancy unless he has a bad record.

We identified our employees by the photographic badges quite some time ago. We have a plant protection or guard force of seven uniformed, deputized policemen, all of whom are armed. We have in addition two fire watchmen who are not part of the guard force. We have one entrance through which all of the employees enter the plant. We spot-check packages occasionally, but do not make this a regular practice.

Unfortunately, in our plant layout, even though all the employees come in one entrance and go to the locker room, since our plant has grown up like Topsy, they go every which way from the locker room to their respective jobs. Thus it is not possible to have a man go into the locker room, change his clothes and then go out into the plant without going through some department other than that in which he works. We have to watch at the entrance so that the men come in properly identified and after they have gone to the locker room that they have not changed their badges or identification before they go into the plant.

We also have an individual identification card with the man's photograph and more or less his history—his Social Security number, his clock number, his signature

and two fingerprints (right index and left index). We charge each employee not cash for his badge and identification card, but charge against him \$1.25 for his badge and 25 cents for the identification card. When he leaves our employ he turns both in to the paymaster and then, of course, there is no money transaction. In the event he loses his badge, he pays \$1.25; and he pays 25 cents if he loses his identification card.

We do not issue replacement badges or cards very quickly. If a man forgets his badge, it is necessary that he go through the employment department and is issued a temporary badge for the day, which must be returned at the end of that day. We keep him on the temporary badge basis for a while until we are sure there is no chance for his badge to turn up.

We have a visitor's system, as a good many plants have, with an individual pass for each person who goes through the plant. This pass must be conspicuously worn.

Lt. Commander Singer: Instead of giving the Standard Red Cross 20-hour course, I would strongly suggest that you have your people volunteer for plant protection to your plant defense co-ordinator, and have the plant defense co-ordinator work out with the Local Defense Council a plan of training that is set up by the Office of Civilian Defense and only covers, for example, 10 hours of first-aid. It gives them, I think, five hours of fire-fighting.

OCD works out a plan all the way through. It entitles the man, having taken the required Civilian Defense Course, to wear the air raid warden or air raid fireman insignia, whatever it is he takes. You can add underneath that air raid warden insignia the name of your firm to show he is an air raid warden in your particular plant. Our experience has been that the men take great pride in those arm bands.

P. E. Rentschler: Of course, the difficulty is that some of these communities are not sufficiently organized to do as you say.

Lt. Commander Singer: You need additional "warning" time to get your plants ready. You will only get that additional time if you have communication with your local or city or county defense control center. If they are not on their toes, if industry cannot get the municipality to act, I don't know who can. Get in back of the Local Defense Council and show them that it is important that the community be organized for air raid precautions.

P. E. Rentschler: I might say that I am the chief of one of the districts with 5,300 people under my division. We have been through a lot of these things and they do not run as smoothly as you would like to see them run.

Lt. Commander Singer: I will concede that. They do not run quite as smoothly as we would like to see them run, but more and more throughout this country people are understanding that this is a front just as much as MacArthur's front in the Southwest Pacific, and they have to take steps to get this front ready.

Unfortunately, the Office of Civilian Defense has no power, it can only suggest. The Regional Director of Civilian Defense was sitting here a while ago and he will be glad to co-operate.

Let me tell you a story. In Nashville, Tenn., some time ago, we talked to the mayor, the fire chief, the police chief and about 20 others. The mayor asked a question, and I said, "Mr. Mayor, do you realize that it is your responsibility to protect your people?" and then discussed that point with him.

When it was over, the mayor said: "I realize that it is my responsibility to protect my people, and I would be criminally negligent if I did not have the proper air

The Hamilton Foundry & Machine Co., Hamilton, Ohio.

raid precaution service, in the same way that I would be criminally negligent if I did not have a police department or fire department or health department to safeguard my people." If you impress that on your mayors and on your communities, you will get results.

Chairman Allan: Commander Singer, should these insignia and arm bands be obtained from the Local Office of Civilian Defense?

Lt. Commander Singer: A man is entitled to wear an arm band of the Civilian Defense Corps when he has registered and taken a prescribed course of training. Admiral Woodward has worked it out so that the plants may have their men take that training through the Local Defense Corps, and then the plants may add a plant insignia underneath the regular insignia to show that he is an air raid warden in that particular plant. But they must take the city training, followed by plant instruction.

One of the reasons for this, incidentally, is that there is a bill in Congress now that civilian defense workers who are injured in the line of duty will be entitled to compensation. If that bill goes through a person will have to be a duly registered and qualified defense worker if he is to secure the benefits of that bill. It is a means of protecting him.

Earl R. Schultz*: At the present time there is a lot of expansion in the factories. We have many subcontractors coming in. What suggestion is made about checking on their employees? Thus far, we have just been taking the contractor's word that his employees are all right. At the present time we have about 150 subcontractor employees. The only check I have on them is through the contractor himself, and he vouches for them. There is a question in our minds at the time, and we are checking further, and are open for suggestions.

*Chief Watchman, American Steel Foundries, Alliance, Ohio.

Chairman Allan: Of course, this whole program is a co-operative program, and we are hopeful that employers can be educated to go along with this program. If not, some day the community is going to get after them when they refuse or are not prepared to do something, and it may not be so good for them.

Lt. Commander Singer: In the same way that the Army and Navy have a clause in their contracts that says you must comply with all their requirements in the matter of protection, you can put a clause in your contracts with the subcontractors that they shall use only employees who have been fingerprinted and investigated. I happen to know that a very large company does that with excellent results.

E. W. Beach: The method which is employed by our company is not 100 per cent perfect, but on all outside workers who come in-for instance, erectors of steel on a building—we require that the contractor furnish us with the birth certificate of each man he employs inside our fenced property.

Member: In connection with the identification, we started that about a year ago. We have been following nearly all of the suggestions outlined by the code. The vice president came down to the plant, parked his car around in the back, and found a new guard there. The vice president had forgotten his identification card, so the guard stopped him. The vice president said, "Damn it, I own this place."

The guard said, "I can't help it. I got orders. I just got this job this morning and I want to keep it."

Chairman Allan: That is the way the police force in the plant should be.

Gentlemen, in concluding this meeting, let us show our appreciation to Rear Admiral Woodward and Lt. Commander Singer by giving them a rising vote of thanks.

Government Officials Add to Value of A.F.A. Convention

OR the cooperation extended by various governmental agencies in contributing to the success of the recent Convention and Foundry Show, the American Foundrymen's Association takes this opportunity of expressing sincere appreciation on behalf of members and exhibitors alike. The War Production Board and Office of Price Administration, in particular, with some twenty-five representatives in attendance at Cleveland, furthered greatly the basic purposes of the event, namely, obtaining greater castings production for war purposes.

Where the many Ordnance exhibits and special war production talks showed visitor foundrymen what material is needed most, the exhibits and technical sessions demonstrated latest methods for turning it out. Completing this picture, W.P.B. officials offered direct advice on how to obtain contracts and solve priority problems, while O.P.A. representatives gave valuable information on pricing the foundry's product during wartime.

The following W.P.B. representatives were in attendance at the Cleveland convention:

For the War Production Board

W. R. Bean, Chief, Foundry Equip-ment and Supplies Unit, Washing-

. Parker, Contract Di-Branch, Nashville, Tenn. Contract Distribution

Eric W. Blackburn, Chief of Conversion of Surveys, Cleveland.

Wm. R. Ahrberg, Asst. Chief, Operations Section, Cleveland. John H. Bemis, Iron and Steel Branch, Washington, D. C.

Wallace Higgins, Contract Specialist, Cleveland.

Robert W. Graham, Principal Product Specialist, Washington, D. C.

E. P. Buchanan, Senior Industrial Specialist, Washington, D. C.

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K. H. Hamblin, Industrial Specialist, Washington, D. C.

O. F. Carpenter, Associate District Representative, Detroit.

J. Lloyd Littleton, Engineer, Cleveland.

H. F. Jordan, Manager, Washington, D. C.

Charles L. Clark, Cleveland. Raymond L. McFarland, Labor Safe-

ty Training, Cleveland.

O.P.A. representatives present for the 5-day meeting:

For Office of Price Administration

John L. Carter, Head Consultant, Washington, D. C. Joseph Mead, Iron and Steel Section,

Cleveland.

Wm. H. Heywood, Senior Business Specialist, Iron and Steel, Chicago. D. D. Kennedy, Principal Business Specialist, Washington, D. C.

Robert Giggert, Business Specialist, Chicago.

Carl G. Holmquist, Price Executive, Washington, D. C. Joseph B. Meier, Specialist, Non-Ferrous Foundries, Washington,

D. C.

W. M. Caldwell, Senior Business Economist, Washington, D. C. W. S. Whitehead.

AMERICAN FOUNDRYMAN

Castings for Ordnance Production

By Major General L. H. Campbell, Jr.*

General Campbell's address was presented at the Opening Meeting of the 46th Annual A.F.A. Convention in Cleveland, April 20, and underlines the tremendous importance of the castings industry in Ordnance plans. After the last war the trend was to design away from cast parts; today, however, thanks to great improvements made in cast metals, the trend is more and more back to the foundry product.

TFEEL very close to the American Foundrymen's Association through one of my dear friends, Herman Alex. Herman has been in charge of the foundry at the Rock Island Arsenal for many, many years. In fact, this September he will complete 51 years at the Arsenal.

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Back in the days when he and I served together, which was some eight years, he used to come around to me every now and then and say, "Major, I have an association meeting down in Philadelphia this year and I would certainly like to go." The Ordnance Department in those days—the days after the World War, when there never was to be another war; when the Germans were just lovely people, and we thought of the Japanese in terms of Madame Butterfly—used to get \$11,000,000 to run the entire activities of the Department . . . from the Philippines on East, North, South and West, all activities.

Therefore, we had to twist around in order to get Herman to the conventions, but I always saw that he went. He always came back with something new, something in advance of the art as we knew it at the Arsenal at the time. That is why I feel you have one of the livest associations I have ever known.

*Asst. Chief of Industrial Service, Production, Office of the Chief of Ordnance, Washington, D. C.

It is one of the most important organizations to us all now because the foundation of most ordnance work is the casting. More recently—I am talking about headaches now—we have had the alloy steel casting to keep out armor-piercing bullets. In that connection your work has been most marvelous. I am not here to flatter you. I am just telling you facts as we see them in the Ordnance Department.

I remember the last war so well, when we used to go out in the cornfield and build a foundry. We would take the assistant water boy and make him the superintendent; his assistant we'd make the molder, and so on down. They did wonderfully well. They used to get things out of the sand that looked very much like a casting. There were some holes in them you could throw a dog through, but most of time it was pretty good.

I remember once going down to Alliance with one of your friends, Pliny Holt. We were trying to get a casting for a self-propelled artillery mount on which a gun is mounted for transportation as well as firing. The Germans have since picked up the idea and now the newspapers tell us it was all new and their invention. We started it over here; Pliny Holt did. We looked at those castings and I know I could have put my head in the holes, and I wear a $7\frac{1}{2}$ hat; but Mr. Holt had

Prominent personalities at the Foundry Show. Top Left, Bottom Left and Right—At the A.F.A. Alumni Dinner. Center Top—Admiral C. H. Woodward. Center Bottom—Lt. Commander S. J. Singer. Top Right—Guest foundrymen from Brazil at the Reception for Central and South American visitors.



more experience than I in that art. He went up to the foundry boy and said, "Joe, that is one of the finest jobs I have ever seen. When can you

When you think of the advance that has been made since those days it is really remarkable. The effort, the contribution that you men are making to the war effort, is one of the most important and one of the most telling of any industry of which we know, and I say that very sincerely.

We in the Ordnance Department, after the last war tried to design away from castings, due to our sad experience in the last war. You men, however, are rapidly bringing us back to castings by

your own efforts and by your own skill.

Your hear a great deal about our form of life and our contribution to the war effort . . . how we must all get busy seven days a week and 168 hours and all that sort of thing. I often wonder, however, whether we really know what is ahead of us. I doubt it. This country, I believe, and I am not speaking in any way except as an Army officer, is up against the fight of its life. We are in the ring with Joe Louis and pretty soon we are going to be trading blows.

So far our actions have been very small. It is hard to put small detachments all over the world and supply them and have any size force anywhere near large enough to start an offense. That is going to come, however, and what we are now doing and what we are going to do in the next few months may decide whether or not you are going to be pulling the ricksha while the Japs ride.

Now, we will have to pull up our socks and go to work. We have got to really make these sacri-

fices that we hear about.

Saturday night I had one of the saddest experiences I have had for years. My very close friend in life lost his son. As I sat there with him and saw what he was going through, I ran over in my mind the daily work that I have been doing in Washington, and I recalled some of the play that I see and have seen and will see. It does not add up. It does not match with those boys.

Why don't we all show the right stuff of which America is made? Why don't we aid in directing this effort so that a great kid like that, to whom I said "Good-bye" not so long ago and who is now gone, will look back from wherever he may be and fo

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say: "I have not died in vain."

A.F.A. President Reviews Progress of Foundry Industry in Annual Address*

By Herbert S. Simpson

Retiring President, American Foundrymen's Association, and President of National Engineering Co., Chicago.

IT IS customary at this time to present a message to members of our Association, based on our experience during the fiscal year now drawing to a close. As far as our nation is concerned, our fiscal year started December 7, 1941. That date will always remain in our minds as the beginning of a united effort to oppose aggression and protect our chosen way of living. May I, at this time, pay our respects to all of those who are now doing their utmost to help this country pursue its defensive and offensive actions necessary to bring victory for everything that we are so anxious to maintain. I include, in that group, both those who are engaged in actual combat and many more who are helping to produce what is needed to mechanically dominate this conflict.

In 1916-17, just after World War I had started, J. P. Pero was president of this Association. I quote briefly from his annual address: "As an Association, we can do much toward the successful conduct of the war. As individuals, we can do more. There must not be any slackers among us. It is time for action. With a certainty of depletion among our workmen, caused by enlistment and conscription, contemporaneous with an increased demand for our products, there must be

a general speeding up."

*Presented before Annual Business Meeting of the Association, April 22, at 46th Annual A.F.A. Convention, Cleveland.

Doesn't that fit the situation now in World War II, when we are involved to a much greater extent than we were twenty-five years ago?

Again, may I quote Ben Fuller, who was president of our Association in 1917-18: "The foundry interests of the country have taken their place among the leaders in the work of producing vitally needed material."

And now, we are actually in another war, which has been called a war of materials. We have the finest men in the world in our armed forces. They represent the cream of our young men . . . but they must be given the tools and materials to defeat our enemies. Our great and important foundry industry has again been challenged, and we must and will do our part.

Recalls Pledge to Government

Several months before Pearl Harbor was attacked, we called a meeting of heads of various divisions of the foundry industry, including trade and research groups, representing each kind of casting -Gray Iron, Malleable, Steel and Non-Ferrous. The second meeting of that group was held December 8, the day after Pearl Harbor. Immediately the O.P.M. (now the War Production Board) was advised that the Foundry Industry was presenting itself to the Government and that every means be provided to secure maximum production of materials needed. Conferences were held in Washington to help work out details—especially for Gray Iron and Malleable castings—to follow the example of the Steel Castings Group who had previously organized itself to assist the Government obtain their requirements.

There is every indication at this time that we are quickly moving toward the greatest use of foundry facilities of this country, and providing for such extensions to old plants, as well as entirely new ones, required to produce castings so necessary for mechanized superiority.

Predicts Great Castings Increase

During 1942, the Foundry Industry should produce more than fifteen million tons of castings, employing more than three-quarters of a million men... most of this capacity directly or indirectly for war needs. When peace comes, as it surely will at a date which I hope will not be too far distant, we can look back, I am certain, with pride on the record of our Foundry Industry. After the war is over, there should be a demand for castings to cover many things that we have done without during the conflict.

Two worth-while projects have received considerable impetus during the year just closing . . . one of them cupola research, the other castings promotion. Both are dependent upon voluntary contributions and both deserve your support.

Our membership has increased satisfactorily, not to the extent that we believe possible, as we sincerely think every company engaged wholly or in part in producing castings, and many of those occupied in making and selling equipment and supplies for the foundries, should all be members of our Association. Our appreciation to all of those who have so ably assisted in our membership effort.

Traces Chapter Growth

We are very proud of our chapter development. During the year, members of your staff have visited all of them from New York to California and from Toronto to Birmingham. My trip to visit California chapters enabled me to discuss the subject "Castings in Industry" at the Iron and Steel Conference held last February in Del Monte. I wish I had the time to tell you in detail how many of the chapters have grown and carried on periodic meetings and regional conferences, doing many things that are possible only by co-operation. One new chapter has been formed and several others are in process.

The enthusiastic and serious-minded attendance at this convention and exhibit reflects the wisdom of holding the affair in wartime. We particularly appreciate the co-operation of exhibitors who, under difficult conditions, have helped the war effort because, busy as we all are, we are positive that whatever time is taken away from your shops and offices will be made up many times over by valuable information available at this convention and exhibit.



Men of the foundry industry, seen in the Convention Exhibit Halls.

(Photos courtesy Bradley H. Booth,
Jackson Iron & Steel Co.)

It is significant and important that this convention marks our First Western Hemisphere Foundry Congress. It is the beginning of a closer relationship with Central and South America, based on our common interests and protection. Continuing contact with neighbors to the South is essential to complete co-operation for the solution of problems, economic, military and social, resulting from new developments in this changing world. The international scope of the American Foundrymen's Association has provided us with an opportunity to extend the practical application of the idea of solidarity between South and North America. We are dependent upon each other for our future welfare.

May I offer my congratulations to Ed Westover, who has served his first year as Executive Vice-President of your Association. He has proven himself all and more we expected of a man with his foundry experience, ability and thoroughness. Also, may I express my admiration of Charley Hoyt who, with his assistants, has made this exhibit one more of his and their many successes. And our very efficient Secretary, Bob Kennedy, and assistant, Norman Hindle, have developed a technical program unsurpassed at any other convention. Of course, acknowledgment of your staff would not be complete without recognition

(Continued on page 15)

What the Navy Wants and Expects from the Foundry Industry

By Rear Admiral George W. Pettengill* (Retd.)

The following address was presented at the opening meeting of the 46th Annual Convention of the American Foundrymen's Association, at Cleveland, April 20, 1942. In the absence of Admiral Pettengill, it was delivered by J. E. Crown, Master Mechanic, U. S. Naval Gun Factory, Washington, D. C. In stressing the need for "Quantity, Speed, Quality" in production of castings for naval requirements, the author states that the information and experience of the Navy and its research laboratories is available to all in furthering the government's war program.

I CONSIDER it a privilege indeed, to address this convention on the occasion of the first Western Hemisphere Congress of Foundrymen, and to help in forwarding a program to co-ordinate the foundry activities of this continent. Such a program is another manifestation of the broad, unselfish policy of this association in its promotion of co-operation and its dissemination of knowledge which has accomplished so much in the past and which now extends that policy to an even larger field.

The magnitude of our war production program is almost beyond comprehension. It will not only tax to maximum capacity the entire facilities of the democracies, but will require added expansion; will try the ingenuity of every available manufacturer, executive and technician to provide the volume of material required for production, and will make necessary the development of substitute materials in many instances.

Although my comments will apply equally to all branches of the Navy—Construction, Engineering and Armament — I will frame them around Ordnance.

Quantity, Speed and Quality Vital

What the Navy wants and expects of the foundry industry is QUANTITY, SPEED, QUALITY.

The war so far is being fought far from our shores. Quantity production will keep it so by providing ships and more ships to bridge the span; guns and more guns, and planes and more planes, to protect that lane of traffic.

SPEED! SPEED! We need munitions now! A gun today is worth ten tomorrow. Speed spells early victory.

As to quality, the Navy can be no better than the material of which it is made. The youth of this country is providing the highest quality in manpower. You men must furnish the quality in material. I know of no other field where quality of material is more important than for Navy use. When we realize that this material will be used on the high seas far from repair yards, replacement may be impossible and upon its successful opera-



tion may depend the lives of thousands or the fate of our nation.

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Navy Co-operation Promised

In assigning you these three essentials, the Navy fully appreciates its own responsibility and promises you its fullest co-operation. Every effort is being made to stabilize and simplify design and to keep changes to a minimum after production has started. These things the Navy can do to assist you:

- 1. To expedite the placing of contracts and to cut red tape to the bone.
- 2. To make available to you all information the Navy has accumulated from past experience in its Naval establishments.
 - 3. To simplify and modify specifications.
- 4. To properly train inspectors so that a high degree of quality will be maintained, but not at the expense of unjustifiable rejection where unwarranted perfection is attempted.
- 5. To encourage and consider suggestions from contractors and to modify our requirements wherever practical to suit your conditions.

Naval Design Flexible

Navy design of necessity must be constantly changing in order to keep pace with new developments, new tactics, new means of defense against enemy developments.

The development of the aeroplane as a weapon of war revolutionized armament design. Before the aeroplane, our target was slow moving and ample time was often available for mathematical calculations before firing. Today, with a target moving at three or four hundred miles per hour, calculations must be instantaneous or they are valueless. This has led to the development of highly mechanized mounts and guns that will sight, train and fire with accuracy in split seconds.

In order to keep to a minimum the effect of changes in design upon production schedules, these changes are made and tried out at our own yards wherever practicable, so as to try to iron out the bugs of initial design before releasing to industry for production. We feel that our own plants can

[†]Commandant, Washington Navy Yard, Washington, D. C.

serve best by making pilot mounts on new work, furnishing technical data to those desiring it, and making emergency replacements, as far as possible, ourselves in order to prevent interference with commercial schedules. We are depending upon you men for production.

Navy Facilities Available

Placing of contracts for rough castings represents a very small percentage of the casting requirements of the Navy, as the large majority of castings are obtained through sub-contracts from firms doing the machine work. However, whether your contract is direct or indirect, all of the information available at government plants and the facilities of our research laboratories is available to you.

Remember—a government plant is your plant and consider it as such.

I wish to extend this same invitation to the representatives of our sister republics south of the border, whose objective is the same as yours.

Many changes have been made in federal specifications, notably in steel castings, through the wonderful co-operation of the steel group, and I regret that the non-ferrous group has not yet organized along the same lines. I know that they, too, could be most helpful in eliminating some of the bottlenecks which specifications often cause.

I appeal to you for patience in your dealing with some of our newly made inspectors. We were confronted with the same problem in expanding our inspection force as you were in expanding your production lines.

Enough experienced men were not to be had, and we were forced to take men with little or no experience and train them as rapidly as possible. The inspector is not always right, but I do know that our basic inspection organization is fully experienced and it should be possible in time to eliminate any misunderstanding or friction.

The Secretary of the Navy expressed in very terse language a policy which can well be applied to inspection. I quote: "We must become intolerant of delay. We must tear our way through red tape. We must pillory bureaucrats who stupidly sacrifice time in the pursuit of an impossible perfection."

The Navy seeks your criticism. Many valuable suggestions have been received from producers who have requested changes in design, changes in material or changes in specifications to facilitate production methods. Your request cannot always be granted, but I assure you that when denied it is only after the most deliberate consideration.

Where Castings Can Serve

Speaking more specifically as to what the Navy wants from the foundry industry, all of you are probably thoroughly familiar with castings requirements for ship construction, including the engines, but perhaps all are not so familiar with ordnance requirements.

In ordnance, very little cast iron can be used due to its brittleness. Its use thus is confined

almost exclusively to machine tools, jigs, fixtures and yard maintenance.

Steel and the non-ferrous alloys prevail, and the demand is in ever increasing quantities.

Steel castings for gun slides, gun yokes, stands, shell hoists, gun directors and torpedo tubes, formerly ordered by the dozen, now are being ordered by the thousands

Non-ferrous castings, for the same parts where non-corrosion or spark-proof properties are necessary, are being ordered in like quantities.

Malleable castings are now being considered for many applications.

Speed and Quantity Paramount

In fulfilling these war orders, I cannot over emphasize the necessity for speed and quantity that your Navy expects. We MUST have these vital munitions of war to "Hit Hitler now and slap the Jap off the map."

The magnitude of this Congress thrills me. The wide scope of activities being undertaken, the spirit of co-operation and unity that is evident everywhere, and the high character of the papers being presented, makes me feel proud to have been included in your program.

You have a big task ahead of you. Problems of stupendous proportion are to be solved. Next to impossible demands will be made of you. But when the product of your efforts is put to the supreme test on board your battling fleet, and the smoke of battle is cleared with victory that is ours, we will all be proud to shout from the house tops: "I Am an American!"

Snapped at the speakers' table at the annual Engineering Instructor's Dinner, during the recent 46th Annual A.F.A. Convention.



Foundry Congress Points Way for Industry's Greatest United Effort

EVERY crisis calls for leadership. Nineteen Forty-Two brought with it the crisis of War... a crisis requiring a vast production of all metals... demanding the rapid spread of technical information to meet the great needs of the hour... and calling for a united effort on the part of all industry.

Against this background of war and the grave responsibility it implied, the 1942 Foundry Congress was held in Cleveland, April 20 to 24. Staged with the fundamental purposes of stimulating increased castings production and the interchange of ideas, it actually accomplished still more. It focused the attention of the entire industry on the tremendous part that the foundry industry is destined to play in winning this War of Metals.

Industry Prepared

Thus the 1942 Foundry Show did far more than fulfill its original purpose. It helped an entire industry convert its thinking and its work from a peace-time to a war-time footing.

When first this convention and exhibit was announced in July, 1941, it was planned that the Cleveland meeting would emphasize the foundry's place in our National Defense Program. Pearl Harbor changed the Defense to Offense. Pearl Harbor greatly intensified the meeting's basic importance and pointed up all activities to a full-fledged War Program.

Need Becomes Vital

Continued Axis victories at the turn of the year, and especially the loss of the Southwest Pacific lands, stepped up still more the vital necessity for obtaining the greatest possible production of cast parts in minimum time. Hundreds of new problems arose overnight . . . problems of priorities, supplies, equipment, production methods and manpower . . . all demanding immediate solutions with Time the essential element.

The Foundry Congress that opened April 20 provided a common meeting ground for the solution, at one time and in one place, of many problems that might have taken weeks or months of independent or individual plant research. Through whole-hearted cooperation of exhibitors and foundrymen alike, leading to personal contacts with men, materials and machines, the industry freely exchanged its latest advancements.

Faced with urgent demand for materials and equipment in essential war production, exhibitors found it difficult to make large displays of machinery this year. They more than made up for this lack, however, by having their representatives turn out in force to discuss with foundry executives and operating men individual plant problems. Availability of equipment and supplies, replacement and maintenance of machines and their adaptation to war work interested many visitors, as well as conservation of vital materials and possibilities for the use of substitutes.

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Exhibitors Cooperate

The exhibit halls presented an inspiring example of cooperation on the part of the exhibitors themselves. In previous years most companies displaying products at Foundry Shows have been primarily concerned with sales promotional opportunities. This year many firms, their output contracted for months ahead, nevertheless participated in order to help foundrymen speed up their war production.

In this their efforts were supplemented by displays of ordnance material for both Army and Navy scattered through the exhibit halls. These displays stressed the application of cast parts to manufacture of trucks, tractors, jeeps, gun mounts, shells, bombs, aircraft parts, marine engines and many other essential military items. Visiting foundrymen carefully inspected this material, seeing in them opportunities for conversion of their own facilities.

AMERICAN FOUNDRYMAN

Some moments of conversation and relaxation as recorded by the Candid Cameraman among exhibitors and foundrymen at Cleveland.

(Photos courtesy Bradley H. Booth, Jackson Iron & Steel Co.)





The Ladies too had a grand time at the Convention, thanks to the local committee who arranged the tea where these photos were taken.

(Photos courtesy Sterling N. Farmer, Sand Products Corp.)

The combined drawing power of the annual convention, the First Western Hemisphere Foundry Congress, and the exhibition with more than 200 manufacturers and suppliers of equipment and materials participating, induced a record attend-Representatives of the War Production Board and the Office of Price Administration, special war production speakers, ordnance displays and government exhibits, all emphasized what the Government expects of castings producers.

Progress Must Go On

In living up to this expectation, the Foundry Show as well as the broad program of technical sessions and discussions demonstrated that in winning this war there can be no "blackout" of foundry progress. The entire Congress brought into sharper focus than ever before the great responsibility of every member of the foundry industry in America's Victory Program.

In this coming year, the Association through its technical committee work, its chapter meetings and the National Convention, has its place in advancing the program of the foundry industry and production for Victory.

Annual Address of A.F.A. President

(Continued from page 11)

of the continued value of Jane Reininga, your Assistant Treasurer.

Presidents of your Association come and go, but the American Foundrymen's Association goes on forever. Next year, Duncan Forbes will be your leader. He will have, as all of us do, the desire to help Uncle Sam emerge from this struggle in as good condition as possible, after a real scrap such as we are now engaged in. Flag-raising, patriotic utterances are all important, but work and more work and longer hours are essential-not expecting, as a reward, excessive compensation in either profits or wages. It should be reward enough to maintain and protect America and all it stands for.

I have traveled a number of times from coast to coast, but on a recent trip across the United States I was more impressed than ever with the variety of country... big cities, small villages, fertile land and irrigation projects; East to West and back again, over a vast expanse of territory. Do we fully appreciate all we have in America—a favored land

without comparison in all the world? But we must remember one of Will Rogers' favorite sayings: "It's a great country, but you can't live in it for nothing."

Error in Aluminum Castings Specifications

AN error has appeared in A.S.T.M. Tentative Specifications for Aluminum-Base Alloy Sand Castings B26-41T as published in the 1941 Supplement to Book of A.S.T.M. Standards, Part I, p. 314. In the fifth column of Table I in these specifications, the value for silicon content of alloy N should be "5.0±0.5" instead of "5.0±0."

INFORMATION WANTED!

The United States Government wants information on economic and industrial conditions in Australia. Any member having first-hand knowledge of these subjects should get in touch with N. F. Hindle, Assistant Secretary, American Foundrymen's Association, 222 W. Adams St., Chicago. Your government also would

Your government also would like to have information on Japanese industries, their location, including power plants, etc. Such information also should be turned in to the above individual as early as possible.

Increased Production and Research Requires These A.F.A. Publications

All A.F.A. publications, recording many of the latest developments in foundry practice and investigations, are available to the entire castings industry — Members and Non-Members alike. Today, with technical information vital to America's war effort, this literature presents a cast metals library second to none. Because much of it is free to Members, membership in A.F.A today has a value far in excess of its actual cost.



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New Members

The officers and directors of A.F.A. take this opportunity of welcoming the new members into the Association and their respective chapter groups. During the past year every chapter contributed to a membership growth of which the Association is mighty proud—with a total gain of 638 new members between July 1, 1941, and April 15, 1942.

Keep up the grand work!

(April 19 to May 15, 1942)

Sustaining from Company

The Robert Mitchell Co. Ltd., Montreal, Que., Canada. (C. C. Brisbois, Fdry. Supt.)

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Chesapeake Chapter

*National Engineering Co., Baltimore, Md. (C. E. McCleary, Pres.)

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Frank P. Kelsey, Foreman, Burnside Steel Foundry Co., Chicago, Ill.

*Peninsular Grinding Wheel Co., Chicago, Ill. (Edward R.

Taylor, Repr.) James Soderstrom, Foreman, Continental Roll & Steel Foundry Co., East Chicago, Ind. Richard P. Weber, Met., Burnside Steel Foundry Co.,

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Cincinnati District Chapter

Walter Placke, Pres., Reliable Foundry Co., Dayton, Ohio

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James H. Bothwell, Plant Supt., Detroit Brass & Malleable Works, Wyandotte, Mich.

Frank L. Bretz, Chief Insp., Aluminum Co. of America, Detroit, Mich.

Harold L. Nearon, United States Radiator Corp., De-

troit, Mich.
Leroy N. Nelsen, Supv., Michigan Steel Casting Co.,

Detroit, Mich.

A. T. Peters, Res. Met., Dow Chemical Company, Midland, Mich.

*Ray Day Piston Corp., Detroit, Mich. (R. E. Day, Pres.) George J. Richards, Coreroom Supt., Chevrolet Grey Iron Foundry, Saginaw, Mich.

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*Fabrica Nacional de Motores, New York, N. Y. (Antonio Guedes Muniz, Air Brigadier Gen'l)
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erson, N. J. Stephen Geo. Zomak, Sub-Foreman, Wright Aeronau-

tical Corp., Paterson, N. J.

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No. Illinois-So. Wisconsin Chapter

W. P. Wittke, Repr., Smith Oil & Refining Co., Rockford, Ill.

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F. L. McIntyre, Davenport, Iowa, Sales, Federal Foundry Supply Co., Cleveland, Ohio
C. J. Turner, Caterpillar Tractor Co., Peoria, Ill.

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AMERICAN FOUNDRYMAN

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tur, Ill.

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NON FERROUS CASTINICS

*Company member.

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Stites, Sales Repr.)

*The Henry Perkins Co., Bridgewater, Mass. (F. C. Perkins, Ass't Treas.)

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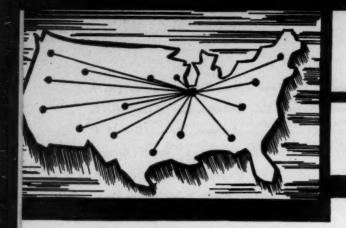
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	—Tentatively Recommended Practices for Sand Cast Tin Bronzes—Report of Non-Ferrous Div. Recommended Practices Comm.	ed .25	.50
	-Effect of Furnace Atmosphere in Non-Ferrous Melting, by J. M. Kelly, Westinghouse Electric & Mfg. Co	10	.20
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Chapter Activitie

Chesapeake Nominates Officers And Directors for Coming Year

By Fred Bruggman,* Baltimore

PRINCIPAL business considered at the regular monthly meeting of the Chesapeake Chapter, held May 1 at the Engineers Club, Baltimore, concerned nominations of officers and directors for 1942-43. Some sixty-five members and guests were present.

Walter Levi, Lynchburg Foundry & Machine Co., as Chairman of the Nominating Committee, presented the following slate for consideration. For President—J. E. Crown, Naval Gun Factory; for Vice-President—R. T. Covington, American Hammered Piston Ring Co.; for Secretary—L. H. Denton, Baltimore Association of Commerce; for Director—Edwin W. Horlebein, Gibson & Kirk Co.

*The Gibson & Kirk Co., and Reporter, Chesapeake Chapter.

The importance of moisture control was stressed. Sands running 100 grain size should have a permeability of 75 to 90 and moisture content of 3.8 to 4.2 per cent. The amount of bond also has a definite bearing on optimum moisture content. Some foundries still expect to get increased strength with higher moisture content, particularly those plants that do not maintain sand control equipment.

It was brought out that synthetic sand requires a different technique in use than natural bonded sand, and that foundries sometimes experience considerable difficulty by not adding sufficient new sand to their sand heaps.

Following the round-table discussion a technical sound movie entitled "Sand" was shown through courtesy of Whitehead Bros. Co., by their representative, Bert Reed, and was well received.

In the absence of the scheduled principal speaker, W. G. Reichert, American Brake Shoe & Foundry Co., Mahwah, N. J., Chapter Chairman E. W. Horlebein conducted a round-table discussion on sand problems. Members present were invited to participate by giving their experiences and opinions from the speaker's stand, resulting in an exceptionally interesting meeting.

It was emphasized strongly that consumers of sand should order sands by grain size, grain distribution, clay content, permeability and strength at a definite moisture content. Use of special nomenclatures should be discouraged, and all specifications should be held within commercial tolerances and checked by accepted standard methods.

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Personalities of the Wisconsin chapter, and other Badger State foundrymen, snapped while inspecting Foundry Show exhibits.

(Photos courtesy John Bing, A. P. Green Fire Brick Co.)



Ladies Night Draws 370 (!) at Wisconsin Relaxation

By Geo. K. Dreher,* Milwaukee, Wis.

RELAXATION from strenu-ous wartime production programs, the happy company of wives and sweethearts, and the first dinner dance ever sponsored by the Wisconsin Chapter . . . that is the story of the highly successful Ladies' Night held by the Chapter at the Schroeder Hotel, Milwaukee, April 17. Three hundred seventy members and guests were present, and all pronounced it such a grand occasion that everyone clamored for another such party next year.

The evening began with a dinner dance until 9:30, followed by a fine floor show, some of the oldtime dances, and a few impromptu lessons in the newer steps. Incidentally, the latter almost proved disastrous to A. C. Ziebell, Universal Foundry Co., Oshkosh, Wis., who nearly suffered a dislocated hip. Everyone, however, had a wonderful time and the party lasted until an appropriately late hour.

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*Manager, Ampco Metal, Inc., and Secretary-Treasurer, Wisconsin Chapter.

Core Room Practices Emphasized at New York

By R. E. Ward,* New York, N. Y.

THE 1941-1942 season of the Metropolitan chapter ended with a bang on Monday evening, May 4, at the Essex House, Newark, N. J. A large turnout literally shrunk in their seats as L. P. Robinson, Werner G. Smith Co., Cleveland, O., drove home the importance of strict core room control in his talk, "Variables Which Affect the Proper Baking of Cores."

In addition to the speaker of the evening, we were shown a color motion picture on "Sand" presented by Whitehead Bros. Co.

Mr. Robinson was presented by G. E. Hadzima, Robins Conveying Belt Co., Passaic, N. J., who was technical chairman of the evening.

There are many variables introduced into core making which materially affect the finished

*Metallurgist, Eclipse Aviation Div., Bendix Aviation Corp., and Asst. Chairman, Publicity Committee, Metropolitan chapter.

product and which, according to Mr. Robinson, could be eliminated by more conscientious control. Good cores must be made from properly mixed sand, properly baked. The baking ovens must be in proper operating condition. Dirty oven flues, incorrectly installed and improperly calibrated pyrometers, and ovens of uneven temperature will not produce good cores.

Discontinuous baking, or attempting to expedite production by shortening the baking cycle and increasing the temperature over that recommended, will not give satisfactory results.

Toledo Chapter Holds

Final Meeting of Year

THE annual or season's final meeting of the Toledo Chapter was held at the Hillcrest Hotel, April 8. Chapter Chairman Vic Zang, Unitcast Corporation, presided during the dinner and business session, devoted mainly to election of officers and directors.

Officers elected were: Chairman-Charles F. Carson, National Supply Co.; Vice Chairman, R. G. Clark, Toledo Machine & Tool Div. of E. W. Bliss Co.; Secretary-Treasurer, R. T. Jansen, Unitcast Corporation.

New directors elected: H. H. Wilder, Detroit Stoker Co., Monroe, Mich.; Floyd Ensign, Ensign Foundry Co., and retiring Chairman Vic Zang. Mr. Zang was given a rousing vote of thanks for leading the Chapter during its first year of existence.

Charles Carson, who had attended the Chapter delegate conference at Cleveland, presented the membership trophy bell which the Chapter had earned as third prize in the National Chapter Membership Contest. Mr. Carson later presided during an "Information Please" session when questions submitted in advance were discussed. R. E. Kennedy, A. F. A. Secretary, Chicago, was present to congratulate the Chapter on the showing made during its first year.

Colored slides detailing new methods for producing special castings were shown and discussed by Vic Zang. After the



Members of Chesapeake chapter, in round-table discussions at May 1st meeting. Top left—J. E. Crown, and Top right—Carl Ackerman, U. S. Naval Gun Factory, Washington, D. C. Bottom left—C. W. Thompson, New Jersey Silica Sand Co., Millville, N. J. Bottom right—Dave Tamor, American Chain & Cable Co., Baltimore, Md.

(Photos courtesy Frederick Bruggman, The Gibson & Kirk Co.)

meeting was adjourned, those present enjoyed a bountiful buffet supper, provided by the Foreman Supply Co.

Twin City and Minnesota **Student Groups Combine**

By Sidney Silberg,* Minneapolis, Minn. IN CELEBRATION of the anniversary of its founding, the Student chapter of the University of Minnesota joined with the Twin City chapter of A.F.A. for a joint meeting, held May 4 at Coffman Memorial Union on the University of Minnesota campus. Dinner preceded presentation of the guest speaker, and the joint meeting was well

attended.

"The Story of Silvery Pig Iron" was the subject of the speaker, Bradley H. Booth, Jackson Iron & Steel Co., Jackson, Ohio. Mr. Booth gave an excellent resume of the history of silvery pig iron, concluding with a description of a new blast furnace producing this iron, stating that the project and its product were both intended for furthering the government's war program. The speaker brought with him an interesting collection of raw materials and pig iron which were closely inspected by those present.

*Secretary, Minnesota University Student

Philadelphia's Victory Program Huge Success

By B. H. Bartells,* Philadelphia, Pa.

VICTORY Night and Annual Meeting Night of the Philadelphia chapter met with great success as a good crowd gathered at the Engineers Club, April 10, to hear Captain Patrick Smith speak on his "Experiences in Japan."

Prior to the Captain's talk the following officers were elected for the coming year: Chairman, Douglas J. Peake, Florence Pipe

*University of Pennsylvania, and Reporter, Philadelphia chapter.

Foundry & Machine Co., Florence, N. J.; Vice-Chairman, B. H. Bartells, University of Pennsylvania; Secretary-Treasurer, Wm. B. Coleman, W. B. Coleman Co.; Directors elected for a one year term are J. M. Robb, Jr., Hickman Williams & Co.; Roger Keeley, Ajax Metal Co.; and Harry Reitinger, U.S. Pipe & Foundry Co., Burlington, N. J.

The speaker, who is a noted traveler, lecturer and authority on the far east, gave a vivid and outstanding picture of the Eastern situation. Having lived in Japan for a long period of time the speaker is familiar with and

has accurate knowledge of the Japanese treachery and tactics. Captain Smith's talk was eagerly listened to and was indeed very informative.

Birmingham Chapter Holds Apprentice Contest

IN connection with the 1941-42
Apprentice Training course
of the Birmingham Chapter, the
last four meetings were devoted
to lectures on sand control, molding machines, casting solidification and physical testing of metals. Apprentices attending were
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A.F.A. PUBLICATIONS

Pamphlets on Steel Foundry Practice

The hundreds of A.F.A. pamphlets published, dealing with practically every phase of

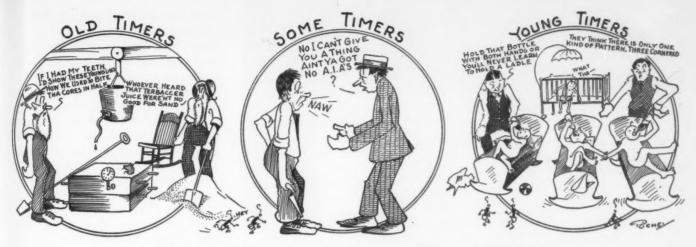
foundry practice and research, form an extensive and valuable technical library. A few

of these pamphlets are listed below, for your convenience in ordering.

PRICE To To Non-Members Members -Making Navy Steel in Basic Electric Furnaces, by S. W. Brinson and F. B. Anderson, Norfolk Navy Yard.....\$0.15 Atmospheric Pressure and the Steel Casting-A New Technique of Gating and Risering, by H. F. Taylor and E. A. Rominski, U. S. Naval Research Laboratory 1.00 -Influence of Design on Stress Resistance of Steel Castings, by R. A. Bull. .50 .35 -Steel Casting Design for the Engineer and Foundryman, by C. W. Briggs, R. A. Gezelius and A. D. Don-aldson, Naval Research Laboratory 1.00 -Acid Electric Furnace Slag Control, by John Juppenlatz, Lebanon Steel Foundry... -Studies of Centerline Shrinkage in Steel Castings, by J. A. Duma and S. W. Brinson, Norfolk Navy Yard..... 1.00 2.00 -Fluidity of Ingot Iron and Carbon and Alloy Cast Steels, by H. F. Taylor and E. A. Rominski, Naval Research Laboratory, and C. W. Briggs, Steel Founders' Society of America -Steel Castings-A.F.A.-A.S.T.M. Symposium. .50 -Production of Uniform Steel for a Light Castings Foundry, by C. H. Kain and L. W. Sanders, Lake & Elliott, Ltd., England -The Hot Strength Test as a Tool for Controlling Core Mixtures, by F. B. Riggan, The Key Co..... .30 .50 -Investigation of Effect of High Temperatures on Steel Sands-Progress Report No. 1..... -Investigation of Effect of High Temperatures on Steel Sands-Progress Report No. 2... 1.00 -Steel Pouring Refractories in Foundry Practice, by R. H. Stone, Vesuvius Crucible Co... .15 -Grinding Wheel Cost Control, by Jeff. Alan Westover, Dyer Engineers, Inc. .30 -Welding of Medium Carbon Steel Castings by the Metal Arc Process, by S. E. Mueller, A. B. Smith, American Bureau of Shipping, and Dr. J. F. Oesterle, University of Wisconsin -Detection of Susceptibility of 18-8 Steel Castings to Intergranular Corrosion, by H. W. Russell, H. A. Pray, and Paul D. Miller, Bartelle Memorial Institute. .30

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Familiar to Thousands of Foundrymen Are the Humorous Drawings of Bill Richey, Art Director for Penton Publishing Co., Cleveland. For Years They Have Illustrated the Famous "Adventures of Bill" Stories by Pat Dwyer in "The Foundry" Magazine. The Drawing Reproduced Above Helped the Northeastern Ohio Chapter Draw Large Crowds to Its "Old Timers Night" Held May 14 at the Cleveland Club, Cleveland.

the series a written examination would be given, and prizes awarded for the best graded papers. Three prizes were offered, consisting of one \$50 and two \$25 Defense Bonds, donated by President H. S. Simpson, who was greatly impressed by the educational work of the chapter on the occasion of his recent visit.

The Apprentice Course Committee, under the able chairmanship of Tom Benners, Jr., arranged for grading of papers by Chapter Chairman Jim Bowers and Charlie Donoho, American Cast Iron Pipe Co.; and Joe Gilbert and Dan Dimick, Stockham Pipe & Fittings Co. Twelve questions comprised the examination, and the committee reported that all aprentices did excellent work. Prizes were awarded as follows: 1st Prize, Sam Carter, American Cast Iron Pipe Co.; 2d Prize, J. T. Corley, Stockham Pipe & Fittings Co.; 3d Prize, Roy A. Dyke, Jr., American Cast Iron Pipe Co.

While the examination covered only material presented at the last four meetings, the complete course covered eleven sessions. Average attendance was 40, being somewhat limited by night operations at several plants. Chapter officers expressed gratification at the success of the course and praised the members of the committee and discussion leaders for their able work.

Western Michigan Celebrates Winning Membership Trophy

HE Ferry Hotel, Grand Haven, Mich., was the scene of a jubilant meeting of the Western Michigan Chapter on May 4, when Chapter Director J. C. Jensen turned over the first place trophy bell, won by the Chapter in the National Membership Contest. With Chapter Chairman Don Seyferth presiding, some 120 members gathered to hold the last meeting of the year, which also marked completion of the Chapter's first complete year. Guest speaker was Pat Dwyer, Engineering Editor, The Foundry, Cleveland, who gave one of his inimitable talks on "Gating and Heading."

The Chapter also held election of officers and directors, the following being named as officers: Chairman—C. J. Lonnee, Muskegon Piston Ring Co., Sparta, Mich.; Vice Chairman—A. E. Jacobson, Grand Haven Brass Co., Grand Haven, Mich.; Secretary—K. C. McCready, Muskegon Piston Ring Co., Sparta; Treasurer—C. H. Cousineau, West Michigan Steel Foundry Co., Muskegon, Mich.

New directors to serve three years were elected as follows: Don F. Seyferth, West Michigan Steel Foundry Co., Muskegon; R. A. Clark, Lakey Foundry & Machine Co., Muskegon; Max A. Amos, Standard Automotive Parts Co., Muskegon; Joe L. Brooks, Muskegon Piston Ring Co., Sparta.

Don Seyferth was recognized for his excellent leadership during the past year, and incoming Chairman Al Jacobson promised that he and his fellow officers would endeavor to follow Don's example in conducting the Chapter affairs during the year ahead. As a conclusion to the "Victory meeting," the members were entertained by group singing and a floor show.

Labor Problems Presented At Northern California

By Geo. L. Kennard,* San Francisco

CONSENSUS of opinion among the 72 members and guests who attended the May 8 meeting of the Northern California chapter, was that this was the most entertaining meeting yet. At the top table 16 present and past officers were seated, including some patriarchs of the industry, a visiting Scotch entertainer, and one or two Army officers. Chapter Chairman E. M. Welch, American Manganese

^{*}Northern California Foundrymen's Institute, and Secretary-Treasurer, Northern California chapter.



March meeting of the Chesapeake chapter. (Top-left) Wm. Mannion, U. S. Coast Guard March meeting of the Chesapeake chapter. (Top—left) Wm. Mannion, U. S. Coast Guard Depot, Curtis Bay, Md.; Jean Reyer, Jas. J. Lacy Co., Baltimore, Md.; and Fred Roemer, The Balmar Corp., Woodberry, Md., look over a chapter announcement. (Top—center) Charles Burgee, Western Electric Co., Baltimore, Md.; and Bertram Reed, Whitehead Bros., New York, in a friendly chat. (Top—right) C. M. Holcolm, Foundry Equipment Co., Cleveland, Ohio. (Bottom—left) C. W. Thompson, New Jersey Silica Sand Co., Millville, N. J.; Brownlee Mentzer, Wood Embly Co., Waynesboro, Pa.; and J. Milson Graham, Ajax Metal Co., Philadelphia, Pa., in a huddle before the meeting starts. (Bottom—center) Speaker at the March meeting, E. A. St. John, Federated Metals Div., A. S. & R. Co., New York. (Bottom—right) John H. Cochrane, Cochrane Brass Foundry, York, Pa. New York. (Bottom-right) John H. Cochrane, Cochrane Brass Foundry, York, Pa.

(Photos courtesy Frederick Bruggman, Gibson & Kirk Co., Baltimore, Md.)

Steel Div., Oakland, presided with his usual disregard for small change in payment for petty infractions of rules.

A number of committee chairmen presented reports on their assignments, and to James L. Blackie, Pacific Graphite Works, Oakland, fell the privilege of giving a concise but comprehensive picture of the recent A.F.A. annual convention in Cleveland.

Guest speaker was Almon E. Roth, president, San Francisco Employers Council, San Francisco, who proved himself well posted on labor relations as they affect industry, particularly under these constantly changing wartime conditions. Mr. Roth, formerly comptroller at Leland Stanford University, Berkeley, Calif., clarified for the members some tangled phases of today's labor situation. He mentioned, for example, how employees trained at great expense for 8hour shifts in Pacific Coast aircraft plants have moved to Eastern and Midwest plants where overtime still is being paid. A number of questions were answered by the speaker following his address.

The only sad note of the evening was in reference to the death, on May 3, of the chapter's beloved director, Ben C. Page, who will be missed by a host of friends.

Quad City Men Told of Research in Cast Iron

By J. Morgan Johnson,* Moline, Ill.

UEST speaker at the April 13 meeting of the Quad City chapter, held at Fort Armstrong Hotel, Rock Island, was R. G. McElwee, Vanadium Corp. of America, Detroit. Fifty members attended to hear his address on the subject of "Alloy and Treated Cast Irons," in which he described conditions in the gray iron industry in relation to the research work necessary for gray iron to compete with other materials.

Cast iron has many applications today, but lack of developments within the industry, the speaker stated, has retarded advancement. Mr. McElwee declared that alloying of cast iron is small in percentage and in many cases has produced little differ-

*Tri-City Manufacturers' Assn., and Secretary-Treasurer, Quad City chapter.

ence in the final casting. Good castings have been made on certain days, and to achieve exact and sure duplication at all times research work is essential. He stated that a study of combustion, as well as properties of the various materials employed, is necessary before alloying, and pointed out that development within the gray iron industry must be accompanied by consideration of the metal's engineer-

ing properties.

Prior to Mr. McElwee's talk, the report of the Nominating Committee was presented by C. F. Burgston for Committee Chairman Hy Bornstein, Deere & Co., Moline. Officers and directors nominated are as follows: For Chairman-A. D. Matheson, French & Hecht, Inc., Davenport, Iowa; for Vice-Chairman-W. E. Jones, Bettendorf Co., Bettendorf, Iowa; for Secretary-Treasurer (reelection) J. Morgan Johnson; for Directors (three-year terms)-P. T. Bancroft, Moline; R. H. Swartz, Bettendorf Co., Bettendorf; Jack Swatek, A. P. Green Fire Brick Co., Moline; and Chapter Chairman A. H. Putnam to serve the unexpired term of W. E. Jones.

John Ploehn, French & Hecht, Inc., Davenport, was appointed Chairman of the Picnic Committee to select a time and place and make necessary arrangements for the annual summer event.

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Western New York Hears News Hawk, Scrap Facts

By Eliot Armstrong,* Buffalo

NOTHER exceptional at-A tendance of members and guests gathered at the Touraine Hotel, Buffalo, on May 1 for the season's final business meeting of the Western New York chap. ter. None were disappointed, for a fine program was presented, featuring two exceptionally interesting speakers.

By popular request Al Sigl, newspaper man and radio commentator, who spoke before the April meeting in Rochester, gave the meeting his stirring story about the Legion of Blood Donors, which he founded some

^{*}Secretary, Western New York Chapter.

years ago. Mr. Sigl's story was even better than "as advertised" to both to those who had heard him before and to those who heard for the first time about this remarkable legion of patriotic men and women who give their blood voluntarily to save the lives of men wounded in action.

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Featured guest of the evening was Edwin C. Barringer, president and executive secretary, Institute of Scrap Iron and Steel, Washington, D. C., who told the story of scrap metal and "how to get the scrap to stay in the scrap." Mr. Barringer put all his cards on the table in dissipating false rumors and misinformation that has filled the daily press. His true picture of today's scrap problem proved one of the most interesting talks of the chapter's entire season.

Southern California Discusses Cupola Iron

By W. D. Bailey, Jr.,* Los Angeles, Calif.

NINETY-three members and guests attended the regular April meeting of the Southern California chapter, held April 28 at Scully's Cafe, Los Angeles, with chapter President B. G. Emmett, Los Angeles Steel Casting Co., Los Angeles, presiding.

The Entertainment Committee conducted its regular raffle, followed by a report on new members. The report was made by Secretary W. D. Bailey, Jr., on behalf of committee Chairman G. W. Effinger, Snyder Foundry Supply Co., Los Angeles, who was in Cleveland attending the A.F.A. annual convention. A re-

*Westlectric Castings, Inc., and Secretary, Southern California chapter.

port on the convention then was presented by Leonard O. Hofstetter, H. C. Donaldson & Co., Los Angeles.

The slate of new officers and directors for 1942-43 as prepared by the Nominating Committee was offered the members by past-President James E. Eppley, Kinney Iron Works, Los Angeles. The following were nominated. For President-Earl Anderson, Enterprise Iron Works, Los Angeles; for Vice-President-Walter F. Haggman, Foundry Specialties Co., Huntington Park, Calif.; for Secretary - M. E. Hagener, General Metals Co., Los Angeles; for Treasurer - W. D. Bailey, Jr., Westlectric Castings, Inc.: for Directors - Fred Edmison, Mechanical Foundries, Inc., Los Angeles; Robert R. Haley, Ad-

25

A.F.A. PUBLICATIONS

Pamphlets on Gray Iron Foundry Practice

The hundreds of A.F.A. pamphlets published, dealing with practically every phase of foundry practice and research, form an extensive and valuable technical library. A few of these pamphlets are listed below, for your convenience in ordering. $\frac{-\frac{PRICE}{T_0}}{T_0} \frac{-\frac{PRICE}{T_0}}{T_0} \frac{-\frac{PR$

		Sembers .	
	-Cast Iron Strength Versus Structure, by Robt. R. Adam's, Battelle Memorial Institute		3
	-Machinable 1.5 Percent and 2 Per cent Chromium Cast Irons to Resist Deterioration at High Temperature, by C. O. Burgess and A. E. Schrubsall, Union Carbide & Carbon Research Labs.		
	-Temperature Measurement of Molten Cast Iron with the "Rayotube" and Optical Pyrometer, by R. H. Koch and Dr. A. E. Schuh, U. S. Pipe & Foundry Co	.20	
	-Notes on Undercooling of Gray Cast Iron, by Alfred Boyles and C. H. Lorig, Battelle Memorial Institute	.15	
	-Production of Uniform Dense Structures in High Test and Alloy Iron Castings, by M. A. Scott, Greenlee Foundry Co.		
	-Effects of Ladle Inoculation on Austenitic Cast Iron by J. T. Eash, International Nickel Co.	.15	
	-Effects of Superheating, Pouring, Temperatures and Microstructure on the Elastic Properties of Some Plain and Alloy Cast Irons, by A. I. Krynitsky and C. M. Saeger, Jr., National Bur. of Standards		
	-Effect of Phosphorus on Growth of Gray Iron, by M. N. Dastur and Morris Cohen, Massachusetts Inst. of Technology		
3	-Heat Treatment of Cast Iron, by C. A. Nagler and Dr. R. L. Dowdell, University of Minnesota	.20	
	-Some Factors Influencing Graphitization and Behavior of Cast Iron, by S. C. Massari and R. W. Lindsay, Assn. of Manufacturers of Chilled Car Wheels.	.30	
	-Casting Cleaning in a Gray Iron Production Foundry, by H. B. Nye, New York Air Brake Co.	.15	
	—A Metallurgical Study of Cast Iron for Glass Forming Molds, by W. H. Bruckner, University of Illinois, and H. Czyzewski, Caterpillar Tractor Co.	.25	

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vance Aluminum & Brass Co., Los Angeles; J. Donald Locke, Long Beach Iron Works, Long Beach, Calif.; Charles R. Mc-Graw, Long Beach Brass Foundry, Long Beach; Dominic Meaglia, American Foundry Co., Montebello, Calif.; A. H. Popperwell, Reliable Iron Foundry, Los

With chapter business concluded, the first guest speaker of the evening was presented, R. E. Brown, West Coast manager, Electro - Metallurgical Sales Co.

Mr. Brown offered a most interesting paper on "Keeping the Quality of Cupola Cast Iron to a Maximum with Materials Now Available." The timeliness of his subject, in view of priorities and use of substitute materials, proved especially helpful to all members present.

An extra dividend of entertainment then was declared with a second guest speaker, Richard Hughes, presenting an excellent moving picture portraying recent war developments.

future made Mr. St. John's subject very timely and interesting. He proved to be a very able speaker and discussed very freely the characteristics of these silicon and aluminum bronze alloys, as well as foundry practice in handling them.

Various applications of these alloys were discussed and everyone present was benefited. While this was strictly a non-ferrous meeting, the gray iron and steel foundrymen present joined in

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the discussion.

N.I.-S.W. Chapter Gets Bell for 3d Place in Membership Contest

By J. R. Cochran, * Rockford, Ill.

EETING at the Hotel Hilton, Beloit, Wis., on May 12 for the last regular gathering of the season, the Northern Illinois-Southern Wisconsin chapter literally "got the bell." In this case, however, the bell proved to be one for excellence of performance, for it represented third prize in the A.F.A. membership contest. The prized bell was presented by R. E. Kennedy, secretary of A.F.A., Chicago, and marked a fitting close to a successful season.

Some fifty-five members attended to participate in the election of new officers and directors for the coming year, the following being chosen to lead the chapter: Chairman-Max Reuteler, Fairbanks Morse & Co., Beloit; Vice-Chairman - Roy Baysinger, Geo. D. Roper Corp., Rockford; Technical Secretary -J. H. McIntyre, Fairbanks Morse & Co., Beloit; Secretary-Treasurer-R. W. Mattison, Mattison Machine Works, Rockford; Directors-G. K. Minert, Gunite Foundries Corp., Rockford; H. L. Klopf, Fairbanks Morse & Co., Beloit; B. L. Baptist, Beloit Iron Works, Beloit; and Emmet John.

Following the elections the work of the Federal Bureau of Investigation in combating espionage and sabotage in industry was described by an F.B.I. representative from Milwaukee, Mr.

Howard. His talk proved especially valuable in view of the necessity of protecting vital war industries. Mr. Howard answered many questions following his talk, and cleared up important points on fingerprinting and other means of identification.

It was decided by the members that, due to press of war production work, it would be inadvisable to attempt the staging of the annual picnic this summer.

Non-Ferrous Metals Discussed at Chesapeake

By Frederick Bruggman,* Baltimore, Md.

THE regular monthly meeting of the Chesapeake chapter was held at the Engineers Club, Baltimore, March 27, and delicious steak and fish dinners were served to the members and guests.

The speaker for the technical session was E. A. St. John, technical adviser, Federated Metals Div., American Smelting & Refining Co., New York. Mr. St. John discussed thoroughly the substitution of silicon bronze and aluminum bronzes for tin bronzes. Silicon and aluminum bronzes are now being used extensively throughout the country owing to the prevailing scarcity of tin as well as aluminum and copper. The fact that tin will be restricted in the near

Training of Men Topic Of Western Michigan

By Max Amos,* Muskegon, Mich.

WO excellent speakers highlighted the regular meeting of the Western Michigan chapter, held April 13 at the Occidental Hotel, Muskegon, Mich., attended by approximately 50 members and guests.

The tremendous task that lies ahead of the foundries of America, as well as all other industries, in winning the war was strongly emphasized by the first speaker, R. G. Guthrie, Peoples Gas Light & Coke Co., Chicago. He pointed out that more and more materials soon would be unavailable for civilian consumption and stated that everyone would have to devote every effort to the government's war

W. E. George, Campbell Wyant & Cannon Foundry Co., Muskegon, spoke on "The Up-Grading of Men," describing how key men in industry today are spread very thinly. He declared that more supervisors and technicians must be trained, and trained quickly and well for war production work. The point was brought out that there should be no obstacles today in the path of anyone, that the open door to opportunity for men of ability to get to the top is America's strongest weapon against Communism.

Presiding at the dinner was Chapter Chairman Don Seyferth, West Michigan Steel Foundry Co., Muskegon.

^{*}Gibson & Kirk Co., and Reporter, Chesa-peake chapter.

^{*}Standard Automotive Parts Co., and Secretary-Treasurer, Western Michigan chapter.

^{*}Metallurgist, Sundstrand Machine Tool Co., Foundry Div., and Technical Secretary, Northern Illinois-Southern Wisconsin chapter.

Foundry Coke Subject at Cincinnati Meeting

By Henry M. Wood,* Cincinnati, Ohio

FOUNDRY Coke and Cupola Operations" was the main topic presented before the regular meeting of the Cincinnati District Chapter, held May 12 at Hotel Netherland Plaza, Cincinnati, with 40 members and guests attending.

The guest speaker was B. P. Mulcahy, research engineer for the Citizens Gas & Coke Utilities Co., Indianapolis, Ind., who offered a well organized and interesting talk on foundry coke and its relation to cupola melting. Illustrating his subject

*W. W. Sly Mfg. Co., and Secretary, Cincinnati District chapter.

with stereopticon slides and coke samples, Mr. Mulcahy discussed the process of manufacturing three sizes of foundry coke, physical and chemical properties of coke, and dwelt upon the theory and practice of cupola melting. Spirited open forum discussion took place following the speaker's presentation.

In the business discussion preceding this talk, Chapter Chairman W. M. Ball, Jr., Edna Brass Mfg. Co., announced the Entertainment Committee's program for the annual June outing. He also reported, for the Nominating Committee, selections for new officers and directors to be voted upon at the June meeting.

and adaptability to physical testing. He stated that the choice of base sand and selection of proper bonding material are essential in using these sands.

In selection of a base sand, it was stated, material largely composed of sub-angular grains is now considered quite satisfactory, since it requires less bonding material, less mixing time, and flows better, with less cutting of the mold. Casting defects caused by expansion of sand grains may be lessened also.

In selecting a binder, Mr. Schureman declared, three kinds of clays are in use: Kaolinite type, Montmorillonites, and Bentonites, the latter being used in many steel foundries. In using synthetic sands it is essential to keep the water content low.

The speaker emphasized the importance of the dilatometer test, considering it an essential instrument in steel casting work. Importance of the flowability test also was stressed.

Thorough drying of cores was brought out strongly, since improperly dried cores may cause a great deal of trouble. Water in undried cores reacts with carbon during pouring, and the reaction is exothermic, the excess heat increasing sand temperatures over and above that given up by the metal. The result, Mr. Schureman said, is that fusion takes place in the core when the temperature from the metal would not so indicate.

In connection with silica flour, the speaker stated that it acts as

New England Founders Take Up Synthetic Sands for War Work

By Merton A. Hosmer*, Boston, Mass.

PRAWN by the timely subject of "Synthetic Sands for Armament," ninety members of the New England Foundrymen's Association gathered at the Engineers Club, Boston, on May 13 for their regular monthly meeting. President R. F. Meader, Whitin Machine Works, Whitinsville, Mass., presided at the session.

Guest speaker of the evening was Charles Schureman, F. E. Schundler & Co. Inc., Joliet, Ill.,

*Hunt-Spiller Mfg. Co., and Reporter, New England Foundrymen's Association.

who presented a most interesting address on the use of synthetic sands in producing castings for war purposes. Mr. Schureman gave a long list of such castings now being made, including ingot molds, crankshafts, tank castings, and all types of heavy castings for ships, etc.

The speaker gave several reasons for using synthetic sands for this work including: Less new material required, materials readily available, clean castings resulting, durability of molding material, control of grain size,

More Wisconsin personalities at the Cleveland Convention, showing how strongly the foundries of that state were represented.

(Photos courtesy John Bing, A. P. Green Fire Brick Co.)



an insulator and hinders thorough drying. The subject of wood flour also was discussed as an agent to be used in sand to eliminate cracking of castings.

Although many foundrymen prefer that 75 per cent of sand grains be retained on three adjacent screens in the screen test, Mr. Schureman observed that this requirement is thought unnecessary for a good molding sand. A good finish, however, depends largely on grain size.

New Officers Elected By St. Louis District

By Jack W. Kelin*, St. Louis, Mo.

NEW officers and directors for the coming year were elected at the annual business meeting of the St. Louis District Chapter, held May 14 at the De Soto Hotel, St. Louis. The annual report, submitted before a fine attendance, brought out the good news that the Chapter membership now stands at an all-time high of 164. The report also indicated a sound financial condition and considerable progress in Chapter activities during the past year.

Report of the Nominating Committee was submitted by chairman Roy A. Jacobsen, Carondelet Foundry Co., St. Louis, and on motion Secretary-Treasurer Kelin cast an unanimous ballot for the slate as submitted. Thus the new officers and directors for the coming year will be:

Chairman-C. B. Shanley, Semi-Steel Casting Co., St. Louis: Vice-Chairman - Luther A. Kleber, General Steel Castings Co., Granite City, Ill.; Secretary-Treasurer - John Williamson, M. A. Bell Co., St. Louis. Directors-Lloyd C. Farquhar, American Steel Foundries, East St. Louis, Ill.; Walter E. Illig, Banner Iron Works, St. Louis; A. O. Nilles, Griffin Wheel Co., Kansas City, Kans.; Francis T. O'Hare, Central Brass & Aluminum Foundry Co., St. Louis.

A further recommendation of the Nomination Committee, accepted by the membership present, was that Fred B. Riggan, Key Company, East St. Louis, Ill., be appointed to succeed William McKee as a Director. Mr. McKee recently left the city for Birmingham, and is not expected to return.

Among other recommendations was an amendment, proposed by Secretary-Treasurer Kelin, that the positions of Secretary and Treasurer be made separate and distinct. The amendment proposed, involving a change in the chapter constitution, was submitted to the entire membership for approval.

Out-of-town guests included C. E. Westover, Executive Vice-President, and R. E. Kennedy, Secretary, both of the national A.F.A. staff, Chicago. Following the introduction of visitors, the session divided into three groups for informal round-table conferences on steel, gray iron and non-ferrous subjects. The conferences were well attended and pronounced a decided success.

Plans for the annual picnic. scheduled for June 13, were presented by Entertainment Committee Chairman Harold Wiese, Midvale Mining & Mfg. Co., St. Louis.

Harry Felsburg, Well Known Supply Man, Dies

HARRY J. FELSBURG, Manager, Philadelphia office, Sterling Wheelbarrow Co., Milwaukee, died recently at the age of 57. Mr. Felsburg had been manager of the Philadelphia office of the Sterling Wheelbarrow Co. for 20 years and was well known throughout the industry in that district. Mr. Felsburg had been a member of the American Foundrymen's Association since 1935 and had taken an active part in the work of the Philadelphia Chapter of A.F.A.

Book Review

RESEARCHES on the Structure of Alloys" by W. Hume-Rothery, F.R.S., Research Report R.R.A. 562, issued by The British Non-Ferrous Metals Research Association, Euston Street, London, N.W. 1,

June, 1941, price 2s. 6d. For more than fifteen years, Dr. W. Hume-Rothery has been conducting a series of researches on metallic alloys at the University of Oxford. This work has been directed mainly to the establishment of the general principles which decide (1) whether and in what proportions two or more metals are capable of forming solid solutions, (2) the structural and equilibrium characteristics of alloy systems, and (3) the properties of alloys.

In the course of his work, he has evolved new and improved techniques of various kinds. The investigations covering his more than fifteen years have been published in more than 30 papers in the Proceedings of the Royal Society, the Journal of the Institute of Metals and elsewhere. It is claimed that the importance of Dr. Hume-Rothery's work lies in the promise of providing means for forecasting properties of alloys from the atomic characteristics of the constituent metals. The present publication is a concise account of the work thus far done.

In this review the author has been concerned to set out the plan, aims and main conclusions of his work rather than to give the detailed results which are published elsewhere. A list of the published papers mentioned in this report is appended.

Attention, Foundrymen!

FOUNDRIES that are contemplating conversion of some of their capacity to the production of aluminum or magnesium castings, may obtain information on that subject by conferring with Frederick Ayer II. Aluminum and Magnesium Branch, Room 2007, Temporary Building R, War Production Board, Washington, D. C., on aluminum casting; and the Industrial Planning Branch, Steele High School, Dayton, Ohio, on magnesium castings.

ACKNOWLEDGMENT

For courtesy in the use of photographs shown on the opposite page, A.F.A. acknowledges the following: Top, and Bottom Left-Photo Section, Signal Corps, U.S.A., 6th Corps Area, Chicago; Center, Left and Right —Official U. S. Navy Photograph; Bottom Right—Photo by U. S. Army Signal Corps.

^{*}Federated Metals Div., American Smelting & Refining Co., and Secretary, St. Louis District Chapter.

1942 FOUNDRY SHOW FOLLOW UP AND GUIDE to EXHIBITOR **PRODUCTS**

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EXHIBITORS

at the

1942 FOUNDRY SHOW

On the following pages is presented the complete Directory of Exhibitors at the 1942 Foundry Show, and on the pages immediately after the directory, a comprehensive Guide to Exhibitor Products. Together the Directory and Guide comprise the A.F.A. "Follow-Up" which forms a permanent record of the exhibits just as A.F.A. "Transactions" present a permanent record of the technical papers, discussions and committee reports offered at the annual convention. For the whole-hearted cooperation of exhibitors at this year's Foundry Congress the A.F.A. wishes to express, on behalf of the foundry industry, its sincere appreciation. Since 1906 the manufacturers and suppliers of equipment and materials have played a great part in castings progress. Today, as in 1914-18, their cooperation is even more essential, and their contribution to the Cleveland meeting was of inestimable value in aiding the foundry industry do its part in America's war program.

THE ADAMS COMPANY

DUBUQUE, IOWA

SPACE 480, BLOCK D-3, AISLE 4, HALL 4

Adams Jolt Squeezer, Side Rod and Post Type
Adams Universal Jolt Squeezers—Adams Hand Squeezers
Adams Cherry Snap Flasks—Adams Cherry Slip Flasks
Adams Aluminum Slip Flasks
Adams Cherry Easy Lift-off Flasks
Adams Steel Jackets—Adams Cast Iron Jackets
Adams Aluminum Jackets
Adams Pneumatic Rappers—Adams Vibrators

REPRESENTATIVES: William J. Spensley, John A. Cameron, Roy Clemens, Raymond C. Miehe, Jr., Harlow Adams, Philip Adams, Lester A. Demkier, John B. Meyer.

AJAX ELECTRIC COMPANY, INC.

Division of the Ajax Metal Co.
Philadelphia, Pa.

SPACES 90-92-94-96, BLOCK E, AISLE 2, HALL 1

Ajax-Hultgren Electric Salt Bath Furnaces for Carburizing, Neutral and Cyanide Hardening, Selective Heating, Age Hardening, Tempering, High-Speed Steel Tools, Annealing, Brazing, etc.



Representatives: Dr. G. H. Clamer, William Adam, H. L. Edsall, A. A. Anderson, E. E. Bolds.

AJAX ELECTRIC FURNACE CORP.

Division of the Ajax Metal Co. Philadelphia, Pa.

SPACES 90-92-94-96, BLOCK E, AISLE 2, HALL 1



AJAX-WYATT LOW-FREQUENCY INDUCTION MELTING FURNACES FOR BRASS AND FOR ALUMINUM (AJAX-TAMA-WYATT)

REPRESENTATIVES: Dr. G. H. Clamer, Henry Gieseke, Manuel Tama, H. L. Edsall.

AJAX ELECTROTHERMIC CORPORATION

Division of the Ajax Metal Co.
Trenton, N. J.

SPACES 90-92-94-96, BLOCK E, AISLE 2, HALL 1



AJAX-NORTHRUP
HIGH-FREQUENCY
INDUCTION MELTING
AND HEATING FURNACES

REPRESENTATIVES: Dr. G. H. Clamer, R. N. Blakeslee, A. Dean Meyer, F. T. Chesnut, H. L. Edsall, G. F. Applegate, H. G. Remmers, V. S. Wagner.

THE AJAX METAL CO.

Established 1880 Philadelphia, Pa.

SPACES 90-92-94-96, BLOCK E, AISLE 2, HALL 1

Exhibiting

NON-FERROUS METALS AND ALLOYS IN INGOT FORM:

"15 Standard Alloys by Ajax" with Representative Castings.

Tombasil, the Established Silicon Bronze, with Rough and Finished Castings.

REPRESENTATIVES: Dr. G. H. Clamer, Wm. J. Coane, H. L. Edsall, E. W. Woodruff, Z. D. Barns, F. L. Middleton, F. M. Willeson, R. J. Keeley.



ALBANY, N. Y.

SPACES 133-135, BLOCK E, AISLE 1, HALL 1

FOUNDRY SANDS

and

CLAYS

ALPHA-LUX COMPANY, INC.

New York, N. Y.

SPACE 109, BLOCK F, AISLE 2, HALL 1

LUXITOL

For Clean Castings

LIQUITOL Eliminates Churning

SPEEDY Moisture Tester

FOR CUPOLA WELLS, SLAG HOLES AND BREAST.

CONVERTERS AND ELECTRIC FURNACES—ALL TYPES OF LADLE LININGS.

REPRESENTATIVES: Albert DeMacedo, Vice President; Charles J. Harney.

AMERICAN AIR FILTER CO., INC.

Louisville, Ky.

SPACES 303-305, BLOCK A-1, AISLE 1, HALL 4

Roto-Clone Dust Control Systems for Foundries, Air Filters and Electric Precipitators in Actual Operation.

ROTO-CLONE

AMERICAN CRUCIBLE COMPANY

Shelton, Conn.

SPACE 63, BLOCK H, AISLE 3, HALL 1

DISPLAY OF GRAPHITE CRUCIBLES AND SPECIAL SHAPES

SILICON CARBIDE REFRACTORIES AND CEMENTS: "EXCELLO" SUPER DUTY CLAY REFRACTORIES

REPRESENTATIVES: G. T. Hubbell, Vice President; T. W. Jones, B. Bernbaum, L. L. Greenfield.

AMERICAN FOUNDRY EQUIPMENT CO.

Mishawaka, Indiana

SPACES 320-328, BLOCK B-1, AISLE 2, HALL 4



Reg. U. S. Pat. Off.

Manufacturers of

WHEELABRATOR

AIRLESS BLAST EQUIPMENT DUSTUBE AND CYCLONE DUST COLLECTORS . SAND-CUTTERS • SAND BLAST **EQUIPMENT • NOZZLES** ROD STRAIGHTENERS

Impressive displays greeted visitors in Lakeside Hall at the 1942 Foundry Show.



AMERICAN METAL MARKET

111 John St., New York, N. Y.

SPACE 120, BLOCK C, AISLE 1, HALL 1

AMERICAN METAL MARKET

The Market Authority
Established 1882—Daily Since 1899

SUBSCRIPTION RATE-\$15.00 PER ANNUM

REPRESENTATIVES: R. A. Langer, Secretary; S. Glassford, Circulation Manager; P. D. Fahnestock.

AMERICAN OPTICAL COMPANY

Southbridge, Mass.

SPACE 95, BLOCK G, AISLE 2, HALL 1

Manufacturers and Distributors of complete lines of: Safety Goggles, including the Ful-vue, the No. 305 NFA-50 Foundrymen's and the No. 301 Duralite.

Welding Goggles and Spectacles, including the Duraweld. Helmets and Shields. Respirators. Safety Clothing. Calobar and Clear Superarmorplate Lenses. Noviweld Lenses. Aviators Goggles.

Copy of our catalog will be mailed to all who desire it.

REPRESENTATIVES: C. A. Partenheimer, H. J. Brammeier.

AMERICAN SOCIETY FOR METALS AND METAL PROGRESS

7301 Euclid Ave., Cleveland, Ohio.

SPACES 5-7, BLOCK K, AISLE 4, HALL 1

Exhibit will demonstrate the services of the Society to the metal producing and metal working industries, including Chapter meetings, magazines and metallurgical books.

The advertising advantages of the Society's metallurgical magazine "Metal Progress," and markets reached, will be shown.

REPRESENTATIVES: W. H. Eisenman, Ray T. Bayless, E. E. Thum, J. E. Donnellan, Chester L. Wells, R. G. Byrne, A. P. Ford.

Plant protection devices were featured by many exhibitors.





Interest in Main Hall exhibits ran high throughout the week.

THE AMERICAN STEEL ABRASIVES CO.

Galion, Ohio.

SPACES 323-327, BLOCK C-1, AISLE 2, HALL 4

American Standardized Steel Shot American Eversharp Steel Grit

REPRESENTATIVES: Norman K. Kann, Secretary-Treasurer; L. A. Cline.

ANDERSON & BROWN CO.

2034 East 22nd St.

Cleveland, Ohio

and

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REP

JU

SPACE 11, BLOCK K, AISLE 4, HALL 1

MAGNETIC CHUCKS AND DEMAGNETIZERS

Handles difficult work quickly—has intense holding power—does what other magnetic chucks can't do.

REPRESENTATIVES: E. H. Brandenburg, Clarence Kling, W. Foreman.

ARCADE MANUFACTURING COMPANY

Freeport, Illinois.

SPACE 421, BLOCK D-2, AISLE 3, HALL 4

MOLDING MACHINES
AND
FOUNDRY EQUIPMENT

Representatives: B. C. Trueblood, Vice President & Treasurer; August Christen, Sales; Mentor Wheat, Sales.

AMERICAN FOUNDRYMAN



Displays of melting equipment stressed increased production.

AUTOMATIC TRANSPORTATION CO.

Division of the Yale & Towne Mfg. Company 101 West 87th St., Chicago, Ill.

SPACES 351-353, BLOCK C-3, AISLE 2, HALL 4

TRADI AUTOMATIC MARK

Electric Propelled Material Handling Equipment
Low Lift and High Lift Platform Trucks
Fork and Ram Lift Trucks
Load Carriers and Tractors
"TRANSPORTER" Lift Trucks

REPRESENTATIVES: R. L. Wolter, E. L. Bertram, J. M. Johnson, F. M. Liddle, P. A. Wallace, A. M. Batsner, B. I. Florey, N. L. Gorman, L. N. Crissman, H. J. Framhein.

THE AYERS MINERAL CO.

The Central Silica Co., The Millwood Sand Co.

SPACE 98, BLOCK E, AISLE 2, HALL 1

SILICA SANDS MOULDING SANDS



SILICA FLOUR REBONDING CLAY

Representatives: E. M. Ayers, R. G. Hay, J. A. Crew, E. C. Sawyer, G. W. Anselman.

BAKER PERKINS, INC.

Saginaw, Michigan

SPACE 409, BLOCK D-2, AISLE 3, HALL 4

Hand and power roll-over molding and core machines.

Baker Perkins, Inc., sand conditioning equipment.

Complete installations for proportioning ingredients both dry and liquid for core and molding sand with automatic scales and meters.

Equipment for bonding molding sand by the slurry method.

REPRESENTATIVES: George L. Grimes, Sales Engineer; Edwin L. Grimes, Salesman.

THE C. O. BARTLETT & SNOW CO.

Cleveland, Ohio.

SPACES 477-479, BLOCK E-1, AISLE 4, HALL 4

FOUNDRY SAND HANDLING AND SAND CONDITIONING EQUIPMENT

DUST COLLECTORS—CASTINGS HANDLING AND ACCESSORY EQUIPMENT

REPRESENTATIVES: W. S. Lister, H. S. Hersey, H. L. McKinnon, B. A. Smith, M. E. First, W. F. Fruechtel, H. C. Orr, C. W. Ross, C. O. Bartlett, S. A. Artingstall, J. J. Watson.

BAY STATE ABRASIVE PRODUCTS CO.

Westboro, Mass.

SPACE 61, BLOCK H, AISLE 3, HALL 1

MANUFACTURER OF GRINDING WHEELS AND OTHER ABRASIVE SHAPES

SNAGGING WHEELS OF ALL SIZES INCLUDING PORTABLE SNAGGING WHEELS, CUT-OFF WHEELS, MOUNTED POINTS, CONES

REPRESENTATIVES: Walter W. French, Walter Lewis, James A. Lewis, Edward W. Farmer

BLACK, SIVALLS & BRYSON, INC.

Kansas City, Missouri

SPACE 247, BLOCK H, HALL 2

Manufacturers of

Pressed Steel Foundry Flasks, Upsets and Bottom Boards, also Steel Tanks and Plate Steel Specialties.

REPRESENTATIVES: M. J. Kunert, Gen. Mgr.; C. W. Clary, Dept. Mgr.

Castings for anti-aircraft gun mounts attracted great interest.



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BLAW-KNOX COMPANY

Pittsburgh, Pa.

SPACE 222, BLOCK E, HALL 2

Manufacturers of-

CLAMSHELL BUCKETS—STEEL GRATING—
ROLLER GATE FOUNDRY BUCKETS—
STANDARD STEEL BUILDINGS

REPRESENTATIVES: A. E. Hohman, Arnold Hooper, C. F. Weiblein.

THE BLYSTONE CORPORATION

Cambridge Springs, Pennsylvania.

SPACE 13, BLOCK K, AISLE 4, HALL 1

Manufacturers of CORE SAND MIXING EQUIPMENT

REPRESENTATIVES: Carl L. Waterhouse, Acting General Manager; Benjamin B. Townsend, Engineer.

THE BUCKEYE PRODUCTS COMPANY

Cincinnati, Ohio.

SPACE 114, BLOCK D, AISLE 2, HALL 1

FOUNDRY SUPPLIES AND SPECIALTIES

Featuring Core Oils, Partings, Core Pastes, Core Compounds (dry and liquid), High Temperature Furnace Cements, Patented Snap Flask Guides, miscellaneous foundry specialties.

REPRESENTATIVES: Arthur Hoffheimer, Charles Wise, Edgar O. Stamm, V. C. Bruce, Proctor Moore.

ADOLPH I. BUEHLER

228 North LaSalle St., Chicago, Ill.

SPACES 256-267, BLOCK I, HALL 2

AB sample preparation equipment includes: Cutters, Grinders, Mounting Presses, Fine Grinders, Single and Multiple Polishing Machines, Microscopes and Metallographs, Spectographs, Hardness Testers, Etc.

Adolph J. Buehler OPTICAL INSTRUMENTS. METALLURGICAL APPARATUS 228 NORTH LA SALLE ST. . . CHICAGO ILL.

BUSINESS PUBLISHERS INTERNATIONAL CORP.

330 West 42nd Street, New York.

Affiliated with McGraw-Hill Publishing Co., Inc., and
Chilton Co., Inc.

SPACE 130, BLOCK B, AISLE 1, HALL 1

Publishers of "INGENIERIA INTERNACIONAL INDUSTRIA"

Established in 1919. A monthly magazine printed in Spanish and circulating to Latin American foundries, machine shops, steel mills, industrial plants, government officials and machinery importers. Guaranteed circulation of 12,000 copies monthly.

THE CAMPBELL-HAUSFELD COMPANY

Harrison, Ohio.



SPACES 410-412-414, BLOCK C-2, AISLE 3, HALL 4

HAUSFELD
METAL MELTING
FURNACES
FOR NON-FERROUS METALS

REPRESENTATIVES: C. E. Small, Sales Manager; C. E. Haddock, President; E. B. Hausfeld, Secretary; W. B. Franck, Service Mgr.

More efficient foundry practice was spotlighted by all exhibitors in North Hall.





Opportunities for discussion of their problems drew many visitors to Main Hall.

CANADIAN RADIUM & URANIUM CORP.

630 Fifth Avenue, Rockefeller Center, New York City.

SPACE 116, BLOCK D, AISLE 2, HALL 1

Specialists in Industrial Radiography also

Radium Luminous and Fluorescent Paints

REPRESENTATIVES: Henry B. Kearney, Daniel S. Bobrow, Richmond M. Corbett, Joseph S. Harris.

EDWIN S. CARMAN, INC., ENGINEERS

Lee Road at Mayfield, Cleveland, Ohio

SPACE 124, BLOCK B, AISLE 1, HALL 1

CARMAN CUPOLA CONTROL SYSTEM

Continuous Systems
Plant Design
Plant Remodeling
Consulting
Foundry Operation

Surveys — Reports
Cost Reduction
Wage Payment Plan
Executive Control Systems
Metallurgical Control

REPRESENTATIVES: Edwin S. Carman, President; Thornton S. Carman, Treasurer; Paul E. Kiefer, Engineer.

CERTIFIED CORE OIL & MFG. CO.

3308 So. Cicero Ave., Chicago, Illinois



SPACES 100-102, BLOCK E, AISLE 2, HALL 1

AS IN THE TRADE MARK SO IN OUR CORE OILS

REPRESENTATIVES: T. G. Waugh, W. H. Hooper, M. E. Nordman, R. Schaefer, F. F. Shortsleeve, J. R. Wark, J. Yaeger, N. Yaeger.

CHAMPION FOUNDRY & MACHINE CO.

1314-24 West 21st St., Chicago, Ill.

SPACE 415, BLOCK D-2, AISLE 3, HALL 4

CHAMPION Molding Machines

CORE BLOWERS—ELECTRIC RIDDLES

Representatives: A. V. Magnuson, Sales; Walter Naylor, Enginering; H. O. Magnuson, Sales.

CHICAGO MFG. & DISTRIBUTING CO.

Chicago, Illinois

SPACE 20, BLOCK H, AISLE 4, HALL 1

CORE TRUCKS
CHIPPING HAMMERS
FLASKS AND JACKETS
BOTTOM BOARDS
AIR SEPARATORS
LATHE CENTERS

REPRESENTATIVES: Thomas L. Adas, Manager; A. C. Force, Asst. to President; C. B. Teeter.

CHICAGO RETORT & FIRE BRICK CO.

208 S. LaSalle Street, Chicago, Illinois

SPACE 206, BLOCK C, HALL 2

FITTED LADLE LININGS WILL SAVE TIME AND MONEY



CONTROL-BLENDED CLAYS INCREASE EFFICIENCY

REPRESENTATIVES: Charles S. Reed, Jr., John H. Hock, Robert P. Stevens, Carl E. Von Luhrte, E. C. Meagher.

CLEARFIELD MACHINE COMPANY

Clearfield, Penna.

SPACES 461-463, BLOCK E-1, AISLE 4, HALL 4



REPRESENTATIVES: W. E. McMurray, Chief Engineer; R. K. Quigley, Engineer; P. B. Reed, Gen'l. Mgr.; S. R. Rapp, Sales; L. H. Wells, Sales.

THE CLEVELAND FLUX COMPANY

1026-34 Main Ave., Cleveland, Ohio

SPACES 58-60, BLOCK F, AISLE 3, HALL 1

COMPLETE DISPLAY OF FAMOUS CORNELL FLUXES

which have been manufactured and on the market since 1918 covering our fluxes for iron, semi-steel, brass, bronze, aluminum and copper. Especially featuring our FAMOUS COR-NELL IRON CUPOLA FLUX, in briquette form-the convenient and accurate way of fluxing the cupola.

REPRESENTATIVES: Clifford B. Cornell, George L. Blazer, Gladys Hansen, Anton Deimling, Jasper Williams.

THE CLEVELAND OUARRIES CO. Cleveland, Ohio

SPACES 331-337, BLOCK C-2, AISLE 2, HALL 4

Buckeye Silica Firestone for lining and patching Cupolas, Soaking Pits, Mixers, Acid Tanks, Drop Forge and Air Furnace Bottoms, Ladles, Bessemer Converters, Copper Refining Furnaces, etc.

Representatives: E. A. Burr, H. G. Leibold, P. J. May, G. F. Elliott, G. F. Slama, F. A. Bauman, F. G. Metzger, R. P. Haynes, G. W. Seelbach, Jr., P. E. Giberson, F. G. Schultz, C. C. Teasel, J. R. Turner, H. D. Carson, H. H. Klein.



The vital wartime need for castings was emphasized everywhere.

Core materials were presented in their relation to war work.



THE CLEVELAND BLOW PIPE & MFG. COMPANY

Cleveland, Ohio

SPACE 482, BLOCK D-3, AISLE 4, HALL 4

ROTO-DRAWER CORE OVEN

This handsome piece of equipment turns out a FULL load of perfectly baked CORES in record-breaking time.

REPRESENTATIVES: George B. Thomson, President; Thomas B. Brickson, Chief Engineer.

CLIMAX MOLYBDENUM COMPANY

500 Fifth Ave., New York City

SPACES 211-213, BLOCK C, HALL 2

Producers of

CALCIUM MOLYBDATE **FERROMOLYBDENUM** MOLYBDIC OXIDE BRIQUETTES

REPRESENTATIVES: W. P. Woodside, A. J. Herzig, V. A. Crosby, R. M. Parke, E. R. Young, T. E. Norman, J. E. Wilson, H. E. Hostetter, G. O. Loeffler, J. F. Robb, P. M. Snyder, C. M. Loeb, Jr., T. D. Parker, A. Linz.

L. A. COHN AND BRO., INC.

5429 W. Roosevelt Road, Chicago

SPACES 217-219, BLOCK D, HALL 2

BRASS AND BRONZE INGOT METAL



ALUMINUM INGOT BABBITT METAL SOLDER

TYPE METALS

JU

ALL NON-FERROUS METALS AND ALLOYS

REPRESENTATIVES: L. A. Cohn, M. S. Cohn, Lee Kahn, Ray Slater, Milton A. Meier, Fred E. Fishman, George W. Schmitt, H. H. Klein, Marvin M. Cohn, E. L. Switzer.

COMBINED SUPPLY & EQUIPMENT CO., INC.

215 Chandler Street, Buffalo, N. Y.

SPACE 241, BLOCK G, HALL 2

BUFFALO CHAPLETS

"ANGLE STEM" AND "DOUBLE ANGLE"

SPECIAL "LEEK-PRUF" CHAPLETS

DOUBLE HEAD, SINGLE HEAD AND MOTOR

Representatives: Stephen LeViness, Jr., Stephen A. LeViness, Everett E. LeViness, Hamilton Hazel, John D. Babbitt.

CONCO ENGINEERING WORKS

Division of H. D. Conkey & Company
Mendota, Illinois
Agencies Throughout the Country

SPACE 115, BLOCK F, AISLE 2, HALL 1

CRANES FOR ALL TYPES OF FOUNDRY SERVICE
Including Conco Electric and Hand Power Overhead Traveling Cranes
CONCO Jib Cranes, All Types
CONCO I-Beam Trolleys and Chain Hoists

Exhibiting

THE CONCO TORPEDO ELECTRIC HOIST 250-1000-lb. cap. Heavily Constructed Cable Type—\$139.50 up

Representatives: V. R. Billings, George H. Smith, Carlton R. Sabin, William S. Miller.

CORN PRODUCTS SALES COMPANY

New York, N. Y.

SPACE 35, BLOCK L, HALL 1



VISIT THE CORN PRODUCTS SALES COMPANY DISPLAY

REPRESENTATIVES: Frank Faller, Al Kreischer.

CRUCIBLE FURNACE CO.

CHARLOTTESVILLE, VA.

SPACE 464, BLOCK D-2, AISLE 4, HALL 4

"Where Better Metals Are Made, Look for a WALKER-YORK Furnace"

> Manufacturers of WALKER-YORK

Forced Hot and Cold Blast, Coke-Fired, Crucible Melting Furnaces.



Displays of aluminum aircraft castings were closely inspected.

DAVENPORT MACHINE & FOUNDRY CO.

Davenport, Iowa

SPACES 442-444, BLOCK C-4, AISLE 3, HALL 4



MOLDING MACHINES

REPRESENTATIVES: Dr. Geo. Braunlich, Charles F. Scherer, T. F. Bailey, L. W. Follett, Charles C. Popp, S. N. Gamble, Harry Bawden.

THE DAYTON OIL COMPANY

Dayton, Ohio

SPACES 121-123, BLOCK E, AISLE 1, HALL 1

DAYTON CORE OILS

The Perfect Oils

"Ask the Men Who Use Them"

Representatives: D. S. Hopping, E. G. Allen, P. J. Strassberger, G. R. Sager, J. G. Freeman, J. C. Eismann.

Demonstrations enabled foundrymen to see products in use.



S

THE DELHI FOUNDRY SAND COMPANY

Sayler Park Station, Cincinnati, Ohio

SPACE 62, BLOCK F, AISLE 3, HALL 1

MINERS AND SHIPPERS OF ALL GRADES OF FLUORSPAR, FIRESTONE

Complete Line of FOUNDRY SANDS CLAYS AND BENTONITE

REPRESENTATIVES: H. F. McVay, W. J. Ziegler.



Lakeside Hall offered practical education in equipment use.

DELTA OIL PRODUCTS CO.

Milwaukee, Wisconsin

SPACE 243, BLOCK G, HALL 2

DELTA PARTEX (Nut Shell Parting)
DELTA NO-VEIN COMPOUND
DELTA CORE AND MOLD WASHES
DELTA GRAKOAT WASH
DELTA STEELKOAT WASH
DELTA Z-KOAT WASH
DELTA BLACKOAT WASH
DELTA CORE OILS
DELTA SPRAY BINDERS

REPRESENTATIVES J. A. Gitzen, Dan Farris, Erve Rathlesberger, Roland Klumb.

WM. DEMMLER & BROS.

Kewanee, Illinois

SPACES 364-366, BLOCK B-5, AISLE 2, HALL 4

CORE BLOWING MACHINES

We Manufacture a Full Line of Core Blowers for all Kinds of Production Core Work.

DESPATCH OVEN COMPANY

Minneapolis, Minnesota

SPACES 471-473, BLOCK E-1, AISLE 4, HALL 4

Core Ovens, Mold Ovens, Blacking Ovens.
Stress-relieving Furnaces, Annealing Furnaces, Solution
Heat-Treating Furnaces, Aging Furnaces, Tempering
and Drawing Furnaces, Preheating Furnaces.

Air Heaters, Gas, Oil and Electric.



Laboratory Testing Ovens.

REPRESENTATIVES: A. E. Grapp, President; H. L. Grapp, Vice-President; F. H. Faber, Vice-President.

DETROIT ELECTRIC FURNACE DIV.

Kuhlman Electric Co. Bay City, Mich.

SPACE 223, BLOCK E, HALL 2

ELECTRIC METAL MELTING FURNACES for ferrous and non-ferrous metals and alloys.

Exhibit consists of one Type LFY 500-lb. conical design Detroit Rocking Electric Furnace with automatic electrode control and automatic rocking controller.

Also one Type N 10-lb, laboratory furnace assembly complete; also one Kuhlman Electric Type Furnace transformer.

Representatives: Ed. C. Woodruff, David W. Boyd, Jos. L. Clay Henry M. Wood, H. S. Nordfelt, A. E. Rhoads.

DE WALT PRODUCTS CORPORATION

LANCASTER, PA.

SPACE 362, BLOCK B-4, AISLE 2, HALL 4

S

METAL CUT-OFF MACHINERY

REPRESENTATIVES: Paul, Gardner, President; John Stolarz, Sales Dept.; H. W. Fortey, Asst. to President.

DE WALT PRODUCTS CORPORATION

LANCASTER, PA.

SPACE 403, BLOCK D-1, AISLE 3, HALL 4

WOOD-WORKING MACHINERY

REPRESENTATIVES: Paul Gardner, President; H. W. Fortey, Asst. to President; J. Stolarz, Sales Dept.; Chas. Snyder, Sales Dept.; Walter Gardner, Sales Dept.

HARRY W. DIETERT CO.

Detroit, Mich.

SPACES 214-216, BLOCK D, HALL 2

A COMPLETE LINE OF MOLDING SAND, CORE AND MOLD TESTING EQUIPMENT.

RAPID CARBON AND SULPHUR DETERMINATORS.

A complete mated line of Spectrographic Equipment

REPRESENTATIVES: H. W. Dietert, John Schuch, H. S. Read, G. C. Curtis, Carl King, Frank Schuch.

JOSEPH DIXON CRUCIBLE COMPANY

Jersey City, N. J.



SPACES 101-103, BLOCK G, AISLE 2, HALL 1

CRUCIBLES—STOPPERS
—SILICON CARBIDE:
FURNACE COVERS—
BASE BLOCKS—
SPECIALTIES



REPRESENTATIVES: L. F. Bruce, L. A. Behrendt, R. R. Belleville, R. E. Goodfriend, R. B. Beam, W. G. Skea, R. F. Leonard, H. Eichwald, P. W. Trook, H. E. Ehlers.

DODGE MANUFACTURING CORPORATION

Mishawaka, Indiana

SPACES 110-112, BLOCK D, AISLE 2, HALL 1

POWER TRANSMISSION
CONVEYING AND SPECIAL EQUIPMENT

Representatives: W. W. French, Director; L. O. Carroll, Garth Stroup, A. J. Kindig.

A great variety of supplies was on exhibit in North Hall.



THE DOUGHERTY LUMBER COMPANY

4300 East 68th St., Cleveland Ohio

Phone DI. 1200

SPACE 332, BLOCK B-1, AISLE 2, HALL 4

SPECIALISTS IN HIGH GRADE PATTERN LUMBER

Northern Cork White Pine
California Sugar Pine
Honduras Mahogany
FLASK LUMBER • BOXING and
CRATING LUMBER
PLYWOOD BOTTOM BOARDS



REPRESENTATIVES: Owen Willson, Chris Nordrum, Fred Dougherty, Ed Smith, Robert Bernhardi, Floyd Lau.

DUQUESNE SMELTING CORPORATION

Subsidary American Metal Co., Ltd. 50-33rd Street, Pittsburgh, Pa.

SPACES 65-67, BLOCK H, AISLE 3, HALL 1



INGOT BRASS INGOT COPPER SOLDER
DIE CAST ALLOYS TERNE METAL
ALL NON-FERROUS ALLOYS

EASTERN CLAY PRODUCTS, INC.

Eifort, Ohio

SPACE 86, BLOCK C, HALL 1

REVIVO BOND—DIXIE BOND
BLACK HILLS BENTONITE
BALANCED REVIVO—REVIVO SUPER BOND
ALL TYPES OF BOND CLAYS
SEVEN SERVICE ENGINEERS

REPRESENTATIVES: N. J. Dunbeck, S. H. Cleland, R. L. Cleland, Sr., R. L. Cleland, Jr., E. W. Claar, C. P. Randall, G. B. Hayes.

ELECTRO REFRACTORIES & ALLOYS CORP.

Buffalo, New York

SPACES 420-422, BLOCK C-2, AISLE 3, HALL 4

Manufacturers of

TERCOD CRUCIBLES, KELLOGG REFRAC-TORIES, BUFFALO GRINDING WHEELS, ELECTRO STOPPER HEADS, ELECTROLOY NON-FERROUS ALLOYS

THE ELWELL-PARKER ELECTRIC CO.

Cleveland, Ohio
ESTABLISHED IN 1893. BUILDING POWER INDUSTRIAL TRUCKS
SINCE 1906.

SPACE 430, BLOCK C-3, AISLE 3, HALL 4



MULTIPLY MAN-POWER

WITH ELWELL-PARKERS

REPRESENTATIVES: S. K. Towson, C. B. Cook, W. A. Meddick, G. W. Brown, G. E. Stenger, J. P. Lyons, R. F. Crawford, O.R. Heidenrich, F. H. Gill, F. J. Avery, W. J. Leahy, R. W. Sanborn, W. L. Parlon, F. B. Haldy, E. H. Wood.

EUTECTIC WELDING ALLOYS, INC. 40 Worth Street, New York, N. Y.

SPACES 283-285, BLOCK B, HALL 3



Castolin Eutectic Low Temperature Welding Process.

Particularly valuable for salvaging defective castings at the foundry or when already machined. Castolin Eutectic welds on cast iron, steel, all non-ferrous metals and die castings, and results in less distortion, warping and alteration of the metal structure. Welds are machinable, color matching, and have very high physical properties.

REPRESENTATIVES: R. D. Wasserman, R. C. McKeighan, C. G. Wood, W. J. Greenleaf, J. C. Wilcox, J. J. Gabrick, L. W. Masters, C. R. Peck, E. B. White.

THE FANNER MFG. CO.

Cleveland, Ohio

SPACE 51, BLOCK I, AISLE 3, HALL 1

FOUNDRY CHAPLETS FOUNDRY CHILLS

REPRESENTATIVES: J. R. Raible, C. G. Raible, H. J. Colby, H. E. Ballinger, F. W. Beck, J. E. O'Brien, E. H. Schane, Florence Richardson, John Urban.

THE FEDERAL FOUNDRY SUPPLY CO. Cleveland, Ohio

SPACES 104-106-108, BLOCK D, AISLE 2, HALL 1

Manufacturers of

GENERAL FOUNDRY SUPPLY BUSINESS CHARLEROI SEACOAL—FEDERAL GREEN BOND PLUMBAGO-STAR CORE PASTE CORE WASH-LOWE ELECTRIC RIDDLES WONDER WIRE CUTTER CLIMAX WIRE STRAIGHTENER

REPRESENTATIVES: Ralph Ditty, Elmer Ditty, L. H. Heyl, T. H. Terry, T. J. Brown, Geo. H. Donoghue, O. E. Peterson, Geo. A. Fuller, F. L. McIntyre, Harry Donald, F. McCarthy, Walter Kaine, Wm. A. Goebel, Norman Cavedo.

FEDERATED METALS DIVISION AMERICAN SMELTING AND REFINING CO.

Branches in All Principal Cities

SPACES 284-286, BLOCK A, HALL 3

ALUMINUM, BRASS, BRONZE INGOTS AND ALL NON-FERROUS ALLOYS TIN CONSERVATION METALS

REPRESENTATIVES: Saunders Jones, T. A. Hammer, A. Fritschle, J. D. Long, H. L. Smith, J. H. Collen, B. J. Lippert, E. D. Mooney, A. E. St. John, J. Kelin, A. A. Neiman, C. F. Allison, J. P. Ghio, A. Levy, G. R. Caulton, V. J. Ryan.

FISHER FURNACE COMPANY

1740 N. Kolmar Avenue, Chicago, Illinois

SPACES 435-437, BLOCK D-3, AISLE 3, HALL 4

NON-FERROUS MELTING **FURNACES**



MELTING ROOM EQUIPMENT

REPRESENTATIVES: Wm. P. Martin, Jr., K. D. Hoke, P. J. Myall, V. J. Rohe, R. C. Chelius, Bert Bell.

Displays of castings ranged all the way from statuary to aerial bombs.



THE FOUNDRY

Cleveland, Ohio

SPACES 261-265, BLOCK B, HALL 3



Wherever Metals Are Cast

REPRESENTATIVES: George O. Hays, Jack Lathrop, George Pope, A. L. Klingeman, L. C. Pelott, Bob Wellman, Jack Aherns, E. L. Shaner Frank Steinbach, Pat Dwyer, Edwin Bremer, Don Cadot, A. H. Allen, W. G. Gude.

THE FOUNDRY EQUIPMENT CO.

Cleveland, Ohio

SPACES 321-323, BLOCK C-1, AISLE 2, HALL 4

COLEMAN CORE AND MOLD OVENS

Coleman TOWER Core Ovens

Coleman Rolling Drawer Core Ovens

Coleman Transrack Core Ovens

Coleman Car-Type Core and Mold Ovens

Coleman Horizontal Conveyor Core Ovens

Coleman Continuous Mold Drying Ovens

REPRESENTATIVES: C. A. Barnett, J. M. Fitzwilliam, J. M. Bevyl, Geo. J. Bregman, W. W. Drissen, W. H. Payne, W. C. Edgar.

FREEMAN SUPPLY COMPANY

Toledo, Ohio

SPACES 489-493, BLOCK E-2, AISLE 4, HALL 4

GAST CORE SPRAYERS
ROSS CORE DRAWER
MOULDERS TOOLS
PATTERNMAKING MACHINE
SPINDLE AND DISC SANDER
PATTERNMAKERS LATHE

Representatives: Elmer R. Gilbert, Gerald Rusk, E. W. Shaw, Doyle Carbin, C. E. Hurlock, H. L. Trebert.

THE FREMONT FLASK CO.

Fremont, Ohio

SPACE 487, BLOCK E-2, AISLE 4, HALL 4

METAL SLIP FLASKS AND JACKETS

Featuring
THE PATENTED "GROOVLOCK" PIN

REPRESENTATIVES: C. W. Yeager, O. J. Fleck, L. E. Koleman.



Advancement in core practice featured many exhibits.

FRONTIER BRONZE CORPORATION

Niagara Falls, N. Y.

SPACE 258, BLOCK I, HALL 2

The unprecedented demand for High Strength Aluminum Alloys has been the reason for the increased use of FRON-TIER 40E and 40X INGOT... Navy Specification 46A1 Class 1. Substitution of these alloys for Classes 4 and 5 of Navy Specification 46A1 has been permitted where resistance to salt water corrosion and elimination of warpage caused by quench treatment is a factor.

Limited quantities of 40X Secondary ingot are available with proper priorities.

REPRESENTATIVES: E. H. Holzworth, Wm. J. Boyle, A. H. Brown.

GENERAL BLOWER COMPANY

Chicago, Ill.

New York Philadelphia Pittsburgh Detroit Cleveland Los Angeles Bosto

SPACE 401, BLOCK D-1, AISLE 3, HALL 4

CENTRIFUGAL BLOWERS

CUPOLA BLOWERS GAS BOOSTERS
OIL PUMP ASSEMBLIES
POSITIVE PRESSURE BLOWERS

Representatives: C. B. Molloy, Wm. W. Meyer, George Tracey, C. Wiljhelm.

Huge bomb castings vividly portrayed the foundry's flexibility.



4



Throughout Lakeside Hall the theme was: "Greater Production."

THE GLOBE STEEL ABRASIVE CO.

Mansfield, Ohio

SPACES 323-327, BLOCK C-1, AISLE 2, HALL 4

Pioneer manufacturers of metallic abrasives—Globe H-C Shot and Globe Cornered Steel Grit for use in blast and centrifugal force cleaning of all types of castings and metal parts for armament.

REPRESENTATIVE: Paul McConnell, Secretary-Treasurer.

GREAT LAKES FOUNDRY SAND CO.

Detroit, Michigan

SPACE 38, BLOCK G, AISLE 3, HALL 1

BANK, SHARP, MOLDING AND SILICA SANDS. SILICA
AND STEEL ABRASIVES. BENTONITE. BONDING
AND REFRACTORY CLAYS. FIRESTONE, FIREGAN,
AND BAUKITE REFRACTORIES, BLASTING
NOZZLES. DE-SUL-FLUX.

REPRESENTATIVES: Wm. J. Muhlitner, Neil I. McArthur, Russell J. Cronenweth, James G. Mendenhall, Fred L. Weaver, Oscar J. Monrad, H. P. Mackinnon, John L. Jones, R. E. Duncan.

GREAT WESTERN MFG. CO.

Leavenworth, Kansas

SPACE 428, BLOCK C-2, AISLE 3, HALL 4

COMBS GYRATORY FOUNDRY RIDDLES

and

LABORATORY SIFTER FOR SAND CONTROL
ALL TYPES ALL SIZES

REPRESENTATIVES: E. C. Schroeder, J. E. Baker, P. L. Wilson.

GRIMES MOLDING MACHINE SALES

Detroit, Michigan

SPACE 409, BLOCK D-2, AISLE 3, HALL 4

Hand and power roll-over molding and core machines.

Baker Perkins, Inc., sand conditioning equipment.

Complete installations for proportioning ingredients, both dry and liquid, for core and molding sand with automatic scales and meters.

Equipment for bonding molding sand by the slurry method.

REPRESENTATIVES: George L. Grimes, Sales Engineer; Edwin L. Grimes, Salesman.

GROB BROTHERS

Grafton, Wisconsin

SPACE 405, BLOCK D-1, AISLE 3, HALL 4

Velocity action briquetting machine of entirely new design to briquette cast iron and steel chips.

BENI. HARRIS & CO.

11th & State Sts., Chicago Heights, Ill.

SPACES 4-6, BLOCK I, AISLE 4, HALL 1

BRASS AND BRONZE INGOTS

REPRESENTATIVES: Louis Goldman, Vice President; George C. DeCook, Salesman; Fred Valbracht, Salesman; Nathan Harris, Treasurer; Oscar Harris, General Sales Manager.

HERCULES POWDER COMPANY, INC.

NAVAL STORES DEPARTMENT Wilmington, Del.

SPACES 57-59, BLOCK H, AISLE 3, HALL 1



A DRY BINDER USED WHEREVER METALS ARE CAST

REPRESENTATIVES: G. F. Hogg, E. T. Wilander, W. B. Slatery, E. Weatherford, J. Gibson, J. H. Neal, E. Pragoff, R. T. Yates, C. P. Albus, F. E. Schmitt.

HERMAN PNEUMATIC MACHINE CO.

1806 Union Bank Bldg., Pittsburgh, Pa.

SPACES 306-308, BLOCK A-1, AISLE 1, HALL 4

HERMAN MOLDING MACHINES

ALL TYPES

ALL SIZES

Use Herman's to meet every war production molding problem.

REPRESENTATIVES: Thomas Kaveny, Thomas Kaveny, Jr., T. A. Renkenberger, Robert G. Kaveny, I. J. Oesterling, Walter W. Hughes, R. P. Morgan, L. L. Johnston, Jos. W. Gibson, Robert M. Porteous, L. D. Plassmeyer, Ed. Druschel.

HICKMAN, WILLIAMS & CO., INC.

Chicago St. Louis Philadelphia Detroit Cincinnati Pittsburgh

Cleveland Minneapolis Indianapolis

SPACES 97-99, BLOCK G, AISLE 2, HALL 1

FERRO-ALLOYS COAL SHOT



PIG IRON COKE GRIT

THE HILL & GRIFFITH CO.

CINCINNATI BIRMINGHAM CHICAGO ST. LOUIS

SPACES 244-246, BLOCK H, HALL 2

FOUNDRY SUPPLIES



FACINGS EQUIPMENT

REPRESENTATIVES: John Hill, D. N. Hill, E. H. King, H. F. Greek, C. L. Gysin, Matt Geier, Harvey Black, M. Homer Beatty, H. B. Fischer, R. K. Durkan, Howard Nelson, J. A. Reeves.

HINES FLASK COMPANY

1324 Hird Ave., Cleveland, Ohio

SPACES 468-470, BLOCK D-2, AISLE 4, HALL 4

MANUFACTURERS OF ALUMINUM SLIP FLASK AND JACKETS OF ALL TYPES

Representatives: J. F. Hines, R. J. Hines, J. B. Skelly, J. A. Balazs.

HOFFMAN FOUNDRY SUPPLY CO.

1193 Main Ave., Cleveland, Ohio

SPACES 133-135, BLOCK E, AISLE 1, HALL 1

KLEEN KAST PRODUCTS FOUNDRY SUPPLIES AND EQUIPMENT

Ohio Representatives for Albany Sand & Supply Company.

REPRESENTATIVES: Roy S. Hoffman, Robert R. Hoffman, E. N. Butler, Homer J. Stewart

HOUGLAND & HARDY HARDY SAND CO.

Evansville, Indiana

SPACE 215, BLOCK D, HALL 2

Service (H



Value

Producing the World's Largest Variety of Controlled Molding Sands.

REPRESENTATIVES: C. M. Hardy, President; T. H. Hardy, Vice-President; H. P. Hardy, Laboratory; C. E. Seman, Production Mgr.; N. S. Snow, Foundry Engineer, L. B. Osborn, Sales Mgr.

E. F. HOUGHTON & CO.

Philadelphia, Pa.

SPACE 254, BLOCK I, HALL 2

HY-TEN CORE OILS

For Production Foundries—Applicable for Wider Ranges of Baking Temperatures.

REPRESENTATIVES: D. J. Richards, H. E. Martin, D. C. Miner, A. L. Spencer, E. C. Redlin, W. G. Harbert, W. C. Morgan, J. McElgin.

Efficient handling methods were shown in terms of man-hours.





For five full days, a record attendance of foundry executives and key operating men examined the latest in equipment and supplies and their application to individual plant requirements. Many a vital problem affecting war production was solved in the exhibit halls, in contacts with men, materials and modern machines.

THE HYDRO-BLAST CORPORATION

3118 Clybourn Avenue, Chicago, Illinois

SPACES 416-418, BLOCK C-2, AISLE 3, HALL 4

HYDRO-BLAST

Dustless Core Removal—Surface Cleaning—Sand Recovery.
The Proved Wet Sand Cleaning Method.

REPRESENTATIVES: T. K. Webster, Jr., Ronald Webster, Allan S. Noyes, D. H. Petty, J. C. Peirce, M. J. Schrock, T. J. McElligott, Roderick Webster, Chester H. Jones, W. Russell, Roy Luce, Adrian Den Breejen, James Amari, Herbert Niemann, Ray Pence, Edwin McDowd, J. B. Swift.

ILLINOIS CLAY PRODUCTS CO.

Joliet, Ill.

SPACES 218-220, BLOCK D, HALL 2



Representatives: O. L. Jones, A. S. Nichols, F. W. Hintze, F. L. Overstreet, R. A. Prosser, L. E. Taylor.

ILLINOIS TESTING LABORATORIES, INC.

420 N. LaSalle Street, Chicago, Illinois

SPACE 117, BLOCK F, AISLE 2, HALL 1

PORTABLE AND WALL TYPE INDICATING
PYROMETERS
RESISTANCE THERMOMETERS, CONTROLLERS,
METAL DETECTORS
"ALNOR" DIRECT READING AIR VELOCITY METER

REPRESENTATIVES: J. A. Obermaier, President; M. D. Pugh, Sales Manager; E. F. Burke, Sales Representative.

INDUSTRIAL MINERALS COMPANY

Lancaster, Ohio

SPACE 8, BLOCK I, AISLE 4, HALL 1

MOLDING SANDS

REPRESENTATIVE: H. N. Rose, Proprietor.

INDUSTRIAL SILICA CORPORATION

YOUNGSTOWN, OHIO

SPACE 484, BLOCK D-3, AISLE 4, HALL 4

SILICA SANDS

Washed and Dried—Steel Molding—Aluminum and Magnesium Molding
—Synthetic Gray Iron and Malleable Molding—Core—Sand Blast—
Glass Sand—Filter—Traction—Furnace Bottom—Brick Setting.

QUARTZ GRAVEL

Washed and Graded-Roofing Granules

"SILICRETE"

A Graded Quartz Aggregate for Concrete Floor Finishes and Acid Proof Asphalt Floors.

Representatives: J. S. Coxey, Jr., J. A. Morrissey, L. M. Hansen, E. M. Durstine.

In Main Hall thousands of foundrymen discussed vital problems.



INTERNATIONAL MOLDING MACHINE CO.

Chicago, Illinois

SPACES 301-302, BLOCK A-1, AISLE 1, HALL 4

— MOLDING MACHINES —

Turn-over Machines (with and without jolt, with hand and power turnover, with hand, foot and power draw). Jolt Squeeze and Jolt Squeeze Hand and Power Lift Machines, Jolt Lift Machines (Hand, Foot and Power Lift). Plain Jolt Machines, Power Lift Machines. Stripping Plate Machines. 70 Standard Types. Over 900 regular sizes.



— CORE BLOWERS —

REPRESENTATIVES: Edward A. Pridmore, Harold E. Pridmore, Lawrence D. Pridmore, W. J. Rowley, J. C. Kingsland, Joe G. Risney.

THE INTERNATIONAL NICKEL CO., INC.

67 Wall Street, New York, N. Y.

SPACES 278-282, BLOCK A, HALL 3

NICKEL CAST IRON, NICKEL CAST STEEL, NI-RE-SIST, NI-HARD, NICKEL BRONZE, MONEL, INCONEL AND NICKEL, STAINLESS AND HEAT RESISTING NICKEL ALLOY STEELS

REPRESENTATIVES: C. A. Crawford, F. J. Walls, F. G. Sefing, D. J. Reese, H. V. Beasley, W. C. Mearns, H. L. Geiger, G. F. Geiger, T. N. Armstrong, H. S. Lewis, E. J. Bothwell, G. W. Strahan.

THE IRONTON FIRE BRICK CO.

Ironton, Ohio

SPACE 119, BLOCK F, AISLE 2, HALL 1

Kentucky Clay Cupola Blocks

"Ironton No-Joint"—Plastic Ramming Refractory

"Ironton Caro-Line"—Siliceous Ramming Refractory

Ladle Bottom Tile—Ladle Pouring Brick

Representatives: C. E. Bales, Florence McCarthy, E. A. Beeman, M. D. Lucas.

JEFFERSON MACHINE TOOL CO.

4th, Cutter and Sweeney Sts., Cincinnati, Ohio

SPACE 371, BLOCK C-4, AISLE 3, HALL 4

MANUFACTURERS OF TURRET ATTACHMENTS

Such as 5-Tool Tailstock Turret, 4-Tool Toolpost Turret, Adjustable Pull Feed, GYRATORY FOUNDRY RIDDLE, Overhead Swing Frame Grinder, Endless Belt Sander, Power and Hand Feed Milling Machines. Also attachments such as Vises, Plain and Swivel—and Dividing Heads, Tilting and Non-Tilting.

REPRESENTATIVES: Walter J. Newman, Josephine Skilken.

THE JOHNSTON & JENNINGS CO.

Cleveland, Ohio

SPACE 340, BLOCK B-2, AISLE 2, HALL 4

FOUNDRY MOLDING MACHINES STEEL FLASK EQUIPMENT

HARD IRON MILLING STARS VIBRATORS

REPRESENTATIVES: R. J. Davis, J. L. Battenfeld, R. D. Kelley, A. L. Kershaw, Wm. Huntsche.

THE KINDT-COLLINS COMPANY

12651 Elmwood Ave., Cleveland, Ohio

SPACES 424-426, BLOCK C-2, AISLE 3, HALL 4

EQUIPMENT SUPPLIES PATTERN LUMBER

"Everything for the Pattern Shop"

REPRESENTATIVES: E. T. Kindt, E. F. Kindt, R. A. Whaling, H. B. Gates, Paul Weineck, Harrison Stratford.

H. KRAMER & CO.

Chicago, Illinois

SPACE 253, BLOCK H, HALL 2



BRASS—BRONZE ALLOY INGOT METALS



Producing all Ingot Brass and Bronze Alloys in accordance with Specifications of Army (Federal), Navy, Ordnance, Air Craft and other Government Agencies. Also manufacturing Brass and Bronze Ingots conforming to SAE, ASTM, AMS and ARA Specifications.

REPRESENTATIVES: L. Chapman, W. Romanoff, S. M. Marks, C. O. Thieme, G. P. Halliwell, J. L. Stroman, S. Danziger, C. R. Hilb, J. H. Burns, D. E. Stephens, S. Frankel.

Materials Handling equipment was a main center of interest.



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of

THE KRON CO.

Bridgeport, Conn.

SPACE 10, BLOCK I, AISLE 4, HALL 1

THE KRON CO. BRIDGEPORT CONN.

Springless—Accurate
INDUSTRIAL DIAL SCALES
"For Industry's Every Need"

REPRESENTATIVES: Warner F. DeFoe, O. S. Carliss, W. R. Saunders, N. E. Cousineau, Wayne Fies, Paul M. Lockwood, M. B. Fisher, Don J. Dwyer.

LANCASTER IRON WORKS, INC.,

Brick Machinery Division Lancaster, Pennsylvania

SPACE 417, BLOCK D-2, AISLE 3, HALL 4

The Cancaster

MIXER

Scientific Counter-Current Batch Mixing with Balanced Mixing-Mulling Action.

REPRESENTATIVES: Paul Weber, Frank A. Fix, James K. Martin.

LAVA CRUCIBLE CO. OF PITTSBURGH

Pittsburgh, Penna.

SPACE 107, BLOCK F, AISLE 2, HALL 1

Crucibles for ferrous and non-ferrous melting. Interchangeable Tilting Crucibles. Ladle Liners. Heavy Duty Refractories of Silicon Carbide—Fused Alumina—Mullite. Ring Linings—Furnace Covers—Base Blocks for Crucible Furnaces. High Performance Linings and Patching Cements for Melting and Heating Furnaces, Coke—Gas—Oil—Electric.

REPRESENTATIVES: Furman South, Jr., Daniel E. MacLean, R. P. South, T. W. MacLean, H. B. Beighley, Jr.

R. LAVIN & SONS, INC.

Chicago, Ill.

SPACES 460-462, BLOCK D-2, AISLE 4, HALL 4

SMELTERS AND REFINERS OF BRASS, BRONZE AND ALUMINUM INGOT

REPRESENTATIVES: W. B. George, W. G. Jones, Wm. Lavin, Benj. Lavin, Morris Isaacson, C. A. Moore, Herbert H. Klein, Harry Blumenthal, Louis B. Stotter, Grafton Thrasher, M. A. Young.

One of the centers of attraction in Lakeside Hall was the Cleveland Trade School exhibit, where boys exhibited their proficiency in molding.



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Another view of the Cleveland Trade School exhibit at the 1942 Foundry Show. Here students showed their skill in the art of pattern making.

J. S. McCORMICK COMPANY

Pittsburgh, Pa.

SPACES 347-349, BLOCK C-2, AISLE 2, HALL 4

Casting Cleaning Costs are low in your foundry when you use the right binder, core compound, core wash, blacking and plumbago. Years of research and experience in the application of facings and binders qualify McCormick men to select and manufacture materials to meet your special conditions.

Let Us Try to Lower Your Cleaning Costs

REPRESENTATIVES: H. T. Herr, Jr., James W. Early, Day E. Cutler, C. C. Bumbaugh, T. J. Blackwell, S. E. Campbell, H. D. Fowler, T. J. Magnuson, Harry J. Winters.

J. S. McCORMICK GO.

PITTSBURGH, PA.

MACKLIN COMPANY

Jackson, Michigan

SPACES 486-488, BLOCK D-3, AISLE 4, HALL 4

Grinding Wheels—All sizes and shapes—all grains and grades—that Protect

Your Production on all

Grinding jobs.

Representatives: B. F. McIntyre, V. E. Breyley, H. E. Boschulte, J. P. Green, E. E. Halladay.

MAHR MANUFACTURING CO.

Div. Diamond Iron Works, Inc.
Minneapolis, Minnesota

SPACE 429, BLOCK D-3, AISLE 3, HALL 4

CORE OVENS—MOLD OVENS
ANNEALING, STRESS RELIEF FURNACES,
TORCHES, ETC.

MALL TOOL COMPANY

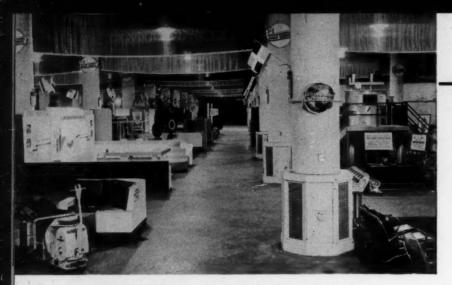
Chicago, Illinois

SPACE 411, BLOCK D-2, AISLE 3, HALL 4



FLEXIBLE SHAFT EQUIPMENT—PORTABLE POWER TOOLS—FOUNDRY GRINDERS—ELECTRIC DRILLS.

Representatives: M. Rehnquist, C. E. Loehr, J. H. Hutton, Ralph Schwass, F. A. McGonigle, Wm. Thornton, B. Mack.



Lakeside Hall exhibits featured adaptability to production.

MARATHON CHEMICAL CO.

Division of Marathon Paper Mills Co. Rothschild, Wisconsin

SPACE 9, BLOCK K, AISLE 4, HALL 1

LIGNOLITE PATTERN
PLATES

REPRESENTATIVES: H. J. Anderson, J. F. Nicholl.

MARTINDALE ELECTRIC CO.

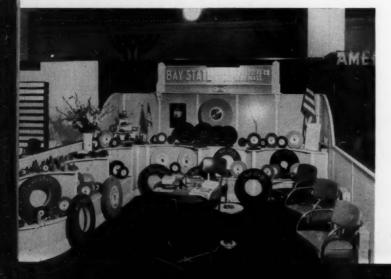
Cleveland, Ohio

SPACE 151, BLOCK D, AISLE 1, HALL 1



ROTARY BURS AND FILES

The industrial importance of abrasive products was made evident.



MASTER TOOL CO., INC.

5605 Herman Ave., Cleveland, Ohio.

SPACE 249, BLOCK H, HALL 2

CHIPPING HAMMERS PNEUMATIC TOOL PARTS PNEUMATIC TOOL REBUILDING

Cutters - Files - Chrome Plating - Gauges

REPRESENTATIVES: E. C. George, Harry W. Leighton, E. B. Rogers, R. L. Burt.

MATHEWS CONVEYER COMPANY

Ellwood City, Pa.

SPACES 16-18, BLOCK I, AISLE 4, HALL 1

Engineers and manufacturers of Gravity, Spring-Mounted and Power Conveying Equipment for Foundry Application.



REPRESENTATIVES: W. L. Dean, A. B. Evans, Lee Sekulski, H. E. Helling, Jr., J. H. Hough, A. E. Milbrath, F. E. Moore, M. J. Anderson.

METALS AND ALLOYS

New York, N. Y.

SPACE 239, BLOCK G, HALL 2

Reinhold Publishing Corporation

Publishers of

METALS AND ALLOYS

AND METAL INDUSTRIES CATALOG

REPRESENTATIVES: H. Burton Lowe, Wm. P. Winsor, F. J. Enright, E. F. Cone, F. P. Peters, H. R. Clauser, J. G. Belcher, J. R. Towne, R. N. Caird, Jr., Donald Hoagland, Wm. H. Relyea, Jr., Ed Buck.

MICHIGAN SMELTING & REFINING

Div. of Bohn Aluminum & Brass Corp.

Detroit, Michigan

SPACES 53-55, BLOCK H, AISLE 3, HALL 1

BRASS AND BRONZE INGOTS.

NAVY G AND NAVY M INGOTS.

MANGANESE BRONZE INGOTS.

ALUMINUM MANGANESE BRONZE INGOTS.

ALUMINUM BRONZE INGOTS.

PHOSPHOR BRONZE AND NAVAL BRONZE INGOTS.

SPECIAL ALLOY INGOTS.

REPRESENTATIVES: Roy R. Arnold, J. S. Withington, R. T. Bloomquist, Harry L. Phillips, Frank Turnbull, Henry Levitt, Charles Bloomgarden.

AMERICAN FOUNDRYMAN

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MID-WEST ABRASIVE COMPANY

Detroit, Michigan

SPACES 145-147, BLOCK D, AISLE 1, HALL 1

GRINDING WHEELS



COATED ABRASIVES

Manufacturers of Dependable Grinding Wheels and Coated Abrasives for the Foundry.

Representatives: J. T. Jackson, J. B. Lynn, Max Jones, V. J. Soloman, P. B. Palmer.

THE H. E. MILLS MFG. CO.

Cleveland, Ohio

SPACE 255, BLOCK I, HALL 2

MILLS DRY CORE COMPOUND AND PITCH BINDERS

REPRESENTATIVES: J. R. Webster, President; John M. Shannon, Vice-President.

MILWAUKEE FOUNDRY EQUIPMENT CO.

3238 West Pierce Street, Milwaukee, Wisconsin

SPACES 358-360, BLOCK B-4, AISLE 2, HALL 4

BRIQUETTING PRESSES
MOLDING MACHINES
(All Types and Sizes)
CORE GRINDERS

Representatives: H. E. Fellows, Palmer E. Hanson, Paul E. Keller, C. H. Lungren, O. F. Weiss, K. C. Babo.

MINE SAFETY APPLIANCES COMPANY

Pittsburgh, Pa.

SPACES 129-131, BLOCK E, AISLE 1, HALL 1



Personal Protective Equipment for the Foundry Industry including

Dustfoe and Comfo Respirators
Dust Sampling and Counting Instruments
Goggles, Faceshields, Protective Clothing
Safety Shoes, Protective Hats

MODERN EQUIPMENT COMPANY

PORT WASHINGTON, WIS.

SPACES 400-404, BLOCK C-1, AISLE 3, HALL 4

MODERN LINE OF MIXER LADLES
MODERN COVERED AND INSULATED LADLES
MODERN CYLINDRICAL LADLES
MODERN POURING SYSTEMS
MODERN RICHARDSON CUPOLA CHARGERS
MODERN ELECTRIC MOLD HEATERS



Conservation of foundry materials was discussed in many booths.

Every phase of foundry practice was exhibited in Lakeside Hall.



MONARCH ENGINEERING AND MFG. CO.

Baltimore, Maryland

SPACES 446-448, BLOCK C-4, AISLE 2, HALL 4

NON-FERROUS METAL MELTING FURNACES
CORE OVENS BURNERS
LADLE HEATERS BLOWERS

REPRESENTATIVES: Donald D. Cooke, Gordon C. Cooke, William Chenowith, Everett B. Cooke, Joseph J. Beeman.

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JAS. A. MURPHY & CO.

Hamilton, Ohio

SPACE 419, BLOCK D-2, AISLE 3, HALL 4



AUTOMATIC SEPARATORS TRANSPORTATION SEPARATORS AFTERCOOLERS EXTRUSION PRESSES - ETC.

NATIONAL ENGINEERING COMPANY

549 W. Washington Blvd., Chicago, Ill.

SPACES 342-348, BLOCK B-2, AISLE 2, HALL 4



Specializing in sand preparing, reclaiming, handling and mold conveying equipment.

Exhibit: Latest design Hi-duty No. 2 Simpson Mixer with Cooling Hood, Aerator and Bucket Loader; new 5 ft. Simpson Mixer; Laboratory Mixer, with one-muller-one-agitator; special exhibit of parts and construction features.

REPRESENTATIVES: H. S. Simpson, Bruce L. Simpson, L. B. Knight, Jr., R. L. McIlvaine, W. C. Packard, A. C. Christensen, Axel Granath, B. W. Roberts, W. E. Jones, F. W. Fuller, Frank A. Jensen, W. A. Kellogg, W. C. Edgar, A. E. Smith, L. R. Pape, R. H. Moore, Webb L. Kammerer, C. P. Guion, C. D. Hollins, G. H. Harlow, A. Haigh.

NEWAYGO ENGINEERING COMPANY

Newaygo, Michigan

SPACE 462, BLOCK D-2, AISLE 4, HALL 4

Complete sand handling and conditioning equipment for all types of foundries, mold, casting handling, ingot, core cooling and special foundry conveyors. Turntables, Aerators, Rotary Plate Feeders, Elevators, and other special foundry equipment.

REPRESENTATIVES: E. N. Hanlon, M. J. Bell, C. R. Walcott, H. J. Krause, J. W. Hasted, E. O. Bell, C. C. Miller.

NEW JERSEY SILICA SAND COMPANY

MILLVILLE, N. J.

SPACES 133-135, BLOCK E, AISLE 1, HALL 1

HIGH GRADE FOUNDRY SANDS AND GRAVEL

CORE SANDS-MILLVILLE FOUNDRY GRAVEL SHARP AND STRONG STEEL MOULDING SPECIAL BLENDED SANDS FOR ALL PURPOSES BLAST SANDS—FILTER SANDS—GLASS SAND SILICA FLOUR-FOUNDRY CLAY

REPRESENTATIVES: Clarence R. Wolf, Howard J. Williams, Clarence W. Thompson, C. Franklin Wolf.

NIAGARA FALLS SMELTING & REFINING CORP.

Buffalo, New York

SPACE 105, BLOCK F, AISLE 2, HALL 1

Largest American Producer of High Quality

FLUXING ALLOYS SPECIAL ALLOYS ALUMINUM ALLOYS INTERMEDIATE ALLOYS HARDENING ALLOYS FLUXES

Specify Falls Brand Products

REPRESENTATIVES: E. G. Jarvis, H. O. Jarvis, W. T. Godard, J. M. Jarvis, B. M. Jarvis, H. O. Kline, L. G. Tarantino, R. G. Maurer, C. B. McElrath, H. J. Weed, H. R. Perrine, Barbara J. Ladner, Ethel E. Gaudy.

WM. H. NICHOLLS CO., INC.

Richmond Hill, New York

SPACES 473-475, BLOCK E-1, AISLE 4, HALL 4

MOLDING MACHINES FOUNDRY EQUIPMENT

REPRESENTATIVES: Edwin T. Doddridge, Sales Engineer; Earl F. Oyster, Engineer; G. Anderson, Shop Supt.; L. R. Schocken, Sect'y.



The serious wartime purpose of Greater Castings Production was everywhere evident in all four exhibit halls at the 1942 Show. The part that castings play in producing Uncle Sam's essential materials of Victory was emphasized through special exhibits of tractors, trucks, jeeps, gun mounts, bombs and shells, loaned through courtesy of the ordnance districts, military agencies and firms engaged in war production work.



Great interest was displayed in materials for making cores.

Equipment "clinics" added greatly to the success of the Show.

THE S. OBERMAYER COMPANY

Established 1874
Chicago — Cincinnati — Pittsburgh

SPACES 39-41, BLOCK I, AISLE 3, HALL 1

FOUNDRY FACINGS
FOUNDRY SUPPLIES

FOUNDRY REFRACTORIES
FOUNDRY EQUIPMENT

68 Years of Continuous Service to the Foundry Industry

EVERYTHING YOU NEED IN YOUR FOUNDRY

THE OILESS CORE BINDER COMPANY

Cleveland, Ohio.

SPACES 357-359, BLOCK D-3, AISLE 3, HALL 4

OILESS CORE BINDER "The Heat Resisting Binder"

OILESS CORE MOLD WASH "The Original Prepared Steel Wash"

Exhibiting Intricate Castings, Cores and Molds, together with Test Blocks Made with Our Products

Representatives: J. H. Bruce, J. A. Hamilton, H. A. Baker, Carl F. Miller, John LaGrand, A. M. Barker, E. A. Wilcox.

OLIVER MACHINERY CO.

Grand Rapids, Mich.

SPACE 440, BLOCK C-3, AISLE 3, HALL 4

For over 50 years designers and manufacturers of the most complete line of Patternshop Machinery and Equipment. Competent Sales Engineers to discuss your definite needs.

If you are in the market for any kind of woodworking machinery or patternshop equipment, to be sure to consult us.

REPRESENTATIVES: A. S. Kurkjian, J. R. Duthie, Arthur Blake, G. C. Conklin, J. E. McLauchlen.

THE OSBORN MANUFACTURING CO.

Cleveland, Ohio
Agencies Located Stragetically All Over the World

SPACES 350-352, BLOCK B-3, AISLE 2, HALL 4

FOUNDRY MOLDING MACHINES



CORE BLOWING MACHINES

REPRESENTATIVES: F. G. Smith, R. W. Hisey, M. W. Zeman, F. N. Gilliland, R. F. Lincoln, H. B. Klar, E. A. Blake, R. E. Kiefer, L. F. Miller, G. G. Adams, D. C. Harvey, Ward Dougherty.

PANGBORN CORPORATION

Hagerstown, Maryland

SPACES 271-281, BLOCK B, HALL 3

"Court of Flags of the Allied Nations" Register with the Victory Queen for War Bonds

14 Representatives Present to Help You Regarding BLAST CLEANING PRODUCTION

ROTOBLAST and AIR BLAST Barrels, Tables, Cabinets, Special Designs, Rooms Dust Control Systems, Helmets, Nozzles, Abrasives

PANGBORN

PANGRORN CORPORATION . . HAGERSTOWN, MARYLAND

PARSONS ENGINEERING CORPORATION

Cleveland, Ohio

SPACE 262, BLOCK A, HALL 3

Manufacturers of
PARBLAST CLEANING
EQUIPMENT, INCLUDING BLAST
ROOMS, BLAST BARRELS,
BLAST CABINETS AND
DUST CONTROL SYSTEMS



REPRESENTATIVES: S. S. Parsons, Lawrence J. Holzman, F. C. Morey, Cecil C. Peck, J. Robert Wisely, Jack Crawford, T. J. Barry, P. E. Pierce, T. N. Thompson, Wilbur Schurk.

Important government agencies, such as the Bureau of Mines, presented much interesting material closely associated with the problems of how to increase production of cast products for war purposes. Thus commercial displays were supplemented by educational exhibits that contributed greatly to the value of attendance.



PEERLESS MINERAL PRODUCTS CO.

Conneaut, Ohio

SPACE 484, BLOCK D-3, AISLE 4, HALL 4

MOLDING SANDS CORE SANDS SILICA SAND BLAST SANDS STEEL ABRASIVES



FURNACE REFRACTORIES
REFRACTORY CLAYS
PEERLESS BOND
BENTONITE
CUPOLA BLOCKS, BRICKS

Flasks-"FREMONT"-Jackets

A.F.A. Research Committee's Sand Control Standards Established and
Maintained.

REPRESENTATIVES: F. L. Moore, C. E. Moore, O. D. Leet, R. C. Payne.

PENN-RILLTON COMPANY

New Pork

Plant-Irwin, Pa.

SPACE 12, BLOCK I, AISLE 4, HALL 1

Manufacturers of: FOUNDRY FACINGS

SEACOL

PITCH CORE COMPOUNDS—GLASS HOUSE CARBON FACEAMOL SHAKE-ON—FACEAMOL SPRAY-ON

REPRESENTATIVE: Henry C. Seidel, Manager.

Equipment for removal of dust drew hundreds of visitors.



PENNSYLVANIA FOUNDRY SUPPLY & SAND CO.

Philadelphia, Pa.

SPACE 251, BLOCK H, HALL 2

CHAPLETS — BINDERS — SUPPLIES FACINGS — EQUIPMENT STEEL ABRASIVES

When we say: FOUNDRY SUPPLIES we mean — EVERYTHING!

REPRESENTATIVES: S. B. Wentz, H. E. Mandel, R. B. Harrison, W. E. Long, F. B. Eliason, E. W. Strong, W. T. Beatty.

PENOLA, INC.

Pittsburgh Detroit Chicago St. Louis Cleveland New York

SPACES 270-272, BLOCK A, HALL 3

PENOLYN CORE OILS

REPRESENTATIVES: C. P. Hanneman, W. S. Davis, Jr., G. R. Meyers, C. L. Wentz, C. C. Blaisdell, W. H. Bower, P. Breeden, III, H. W. Jones, M. D. Hunter.

GEORGE F. PETTINOS, INC.

Philadelphia, Pa.

SPACES 248-252, BLOCK I, HALL 2

ALBANY SANDS BONDED JERSEY SANDS MILLVILLE GRAVEL



WASHED AND UNWASHED SANDS FOUNDRY FACINGS BINDERS BLACKING FOUNDRY SUPPLIES REFRACTORIES

REPRESENTATIVES: George F. Pettinos, Jr., G. P. Albrecht, J. R. Cooney, F. H. Goodfellow, M. L. McGuire, D. S. Rishor, E. G. Stratton, H. G. Stults, H. O. Williams, R. A. Woods, D. S. Yeomans.



Foundry dust control systems were featured in Lakeside Hall.

PITTSBURGH CRUSHED STEEL CO.

Pittsburgh, Pa.

SPACES 323-327, BLOCK C-1, AISLE 2, HALL 4

"Certified for War Work"

SAMSON STEEL SHOT ANGULAR STEEL GRIT

REPRESENTATIVES: G. H. Kann, President; W. H. Skirble, Sales Manager.

PITTSBURGH LECTROMELT FURNACE CORP.

Pittsburgh, Pa.



SPACE 64, BLOCK F, AISLE 3, HALL 1

LECTROMELT FURNACES FOR MELTING AND REFINING STEEL AND IRON

REPRESENTATIVES: W. B. Wallis, W. E. Lewis, H. H. Watson, H. S. Newhall.

PORTER-CABLE MACHINE COMPANY

Syracuse, N. Y.

SPACE 287, BLOCK B, HALL 3

DEMONSTRATION of NEW METHOD of wet-dry abrasive belt grinding. Relieves and supplements major machine tools on many operations. Accurately, quickly, economically. BE SURE TO SEE THIS. It's been the hit of all recent metal shows.

Representatives in principal cities.

POWERMATIC VENTILATOR COMPANY

4019 Prospect Avenue, Cleveland, O.

SPACE 118, BLOCK D, AISLE 2, HALL 1

"IRON LUNGS FOR FOUNDRIES"

Power Automatic Roof Ventilator
Exclusively Designed for Industrial Plants
Available in Sizes from 12-in. to 60-in. and capacities
from 2,500 CFM to 100,000 CFM

POPULAR FOR FOUNDRY VENTILATION

Representatives: M. A. Thesmacher, S. L. Aub, B. G. L. Dodge, R. L. Roskoph, J. B. Shaver, B. Wells.

PRODUCTIVE EQUIPMENT CORPORATION

2926-28 West Lake Street, Chicago, Illinois

SPACE 143, BLOCK D, AISLE 1, HALL 1

SELECTRO

SHAKEOUTS

SAND CONDITIONING
SAND RECLAIMING
CORE KNOCKOUTS

REPRESENTATIVE: Lewis H. Lehman, Sales Manager.

THE PYRO CLAY PRODUCTS CO.

Oak Hill, Ohio

SPACES 44-46, BLOCK G, AISLE 3, HALL 1

FDRY. REFRACTORIES
TAP HOLE BRICK
BREAST BRICK
LADLE SKIMMERS
LADLE LININGS
SOLID LADLE BOTTOMS
LADLE SPOUT BRICK

BRASS FURNACE SHAPES PLASTIC REFRACTORIES CUPOLA BLOCKS STRAIGHTS & SPLITS CLAY-LADELITE "OKILO" "PYRO STEEL"

The exhibit halls provided a forum for discussion of materials.





Abrasive products were presented in great variety of forms.

THE PYROMETER INSTRUMENT COMPANY

New York

SPACE 413, BLOCK D-2, AISLE 3, HALL 4

Manufacturers of:

PYRO OPTICAL PYROMETER

REPRESENTATIVES: A. Bollerman, Secretary; A. C. Holderman.

RADIUM CHEMICAL COMPANY, INC.

570 Lexington Ave. New York 25 E. Washington St. Chicago

SPACE 132, BLOCK B, AISLE 1, HALL 1

RADIUM

for Inspection of Castings, Welds, etc. Equipment and typical films on exhibition Practical Technicians at Your Service.

*Representative: Philip D. Johnson, Technical Adviser.

Exhibits of molding machines stressed high production work.



THE RAMTITE CO.

Division of the S. Obermayer Co. 2563 W. 18th St., Chicago, Ill.

SPACES 43-45, BLOCK 1, AISLE 3, HALL 1

SPECIAL REFRACTORIES FOR FOUNDRIES

N. RANSOHOFF, INC.

Township Ave. & Big Four R. R. Elmwood Place, Cincinnati, Ohio

SPACE 406, BLOCK C-1, AISLE 3, HALL 4

AUTOMATIC STAR RETURN CASCADE MILLS

End-Loading End-Discharging and Side-Loading Side-Discharging Either Wet or Dry Process.

REPUBLIC COAL & COKE CO.

Chicago—New York—Peoria—Indianapolis—Milwaukee St. Louis—Minneapolis—Detroit.

SPACE 221, BLOCK D, HALL 2

TERRE HAUTE SPECIAL FOUNDRY COKE

REPRESENTATIVES: Lewis D. McClaren, P. T. Bancroft, L. E. Davis, H. L. Comin.

THE REPUBLIC STRUCTURAL IRON WORKS

1290 E. 53rd St., Cleveland, Ohio.



SPACE 433, BLOCK D-3, AISLE 3, HALL 4

Sand Bins—Steel Material Boxes—Monorail Systems Steel Buildings

Cupola Charging Platforms

REPUBLIC BOOK-TYPE CORE MAKING MACHINE

RIEHLE TESTING MACHINE DIVISION

American Machine and Metals, Inc. EAST MOLINE, ILL.

SPACE 66, BLOCK F, AISLE 3, HALL 1

Manufacturers of

PHYSICAL TESTING EQUIPMENT

For Tensile, Compressive and Transverse Strength, with capacities up to 60,000 pounds

Impact Tester 110-220 ft. lb. capacity

ROBINS CONVEYING BELT COMPANY

Passaic, New Jersey

SPACE 466, BLOCK D-2, AISLE 4, HALL 4

Manufacturers of:

FOUNDRY SHAKEOUT SCREENS
VIBRATING SAND SCREENS
BELT CONVEYORS

REPRESENTATIVES: A. Hutton, A. E. Conover, W. F. Bankauf, N. M. Godfrey, M. B. Bradley, H. A. Schuler, S. F. Knight, G. E. Hadzima, W. T. Dette.



Looking North on the center cross aisle in Lakeside Hall, toward the Department of Labor exhibit at the end of aisle. Here, as in all the exhibit halls, the war character of the Foundry Show was much in evidence.

RIETZ LUMBER CO.

CHICAGO, ILL.

LARGEST STOCKS IN CENTRAL U. S.

OF

NORTHERN WHITE PINE (PINUS STROBUS)
SUGAR PINE (SPECIAL SHOP GRADES)
IDAHO & NORWAY PINE
HONDURAS MAHOGANY

FOR ALL FOUNDRY AND PATTERN SHOP USES

ROTOR TOOL COMPANY

Cleveland, Ohio
Offices in Principal Cities

SPACES 339-341, BLOCK C-2, AISLE 2, HALL 4

PORTABLE PNEUMATIC TOOLS PORTABLE HIGH CYCLE TOOLS

REPRESENTATIVES: H. P. Bailey, R. C. Manning, James Sturrock, John R. Clague, Austin F. Logan, Floyd L. Paschke, O. W. McCrillin, Alvin E. Seeley, W. M. Emery.



Extensive operating exhibits emphasized the need for greater castings production.

ROYER FOUNDRY & MACHINE CO.

Kingston, Pa

SPACES 363-367, BLOCK C-4, AISLE 2, HALL 4

COST-CUTTING FOUNDRY EQUIPMENT



ROYER SEPARATORS AND BLENDERS

REPRESENTATIVES: S. B. Davies, President; C. D. Hollins, Alexander Haigh, William Fenton, Jacob Seitchek and Wilbur Davis.

SAFETY CLOTHING & EQUIPMENT CO.

Cleveland, Ohio

SPACE 141, BLOCK D, AISLE 1, HALL 1

Manufacturers of

Asbestos, Chrome Leather and Fireproof Duck Clothing. Distributors for Willson Goggles, Respirators, and Sand Blast Helmets; Surty Guards and Inspection Lights; Millburn "Ply" Protective Creams.

REPRESENTATIVES: E. H. Brooks, H. W. Beegle, Roland Jones, J. F. Helmerich, David Martinson, C. L. Jamison, A. W. Burroughs Robt. Giering.

SAFETY ENGINEERING

75 Fulton Street, New York City, N. Y.

SPACE 1, BLOCK L, HALL 1

SAFETY ENGINEERING Magazine

The pioneer publication in industrial accident prevention, health conservation and fire control. Published by Alfred M. Best Co., Inc., New York City, N. Y.



REPRESENTATIVES: Arthur C. Carruthers, Editor; Harry Armand, Managing Editor.

SAND PRODUCTS CORP.

Detroit, Michigan

SPACE 204, BLOCK B, HALL 2

Miners and Shippers of "THAT BETTER SAND"

Sands from-Port Crescent, Manistee, Muske-gon, Pigeon Hill.

Storage docks—Milwaukee, Chicago, Muskegon, Manistee, Detroit, Toledo, Cleveland, Erie, Dunkirk, Buffalo, St. Catharines, Toronto.

REPRESENTATIVES: Jack Cleary, Matt Drennan, Sterling Farmer, A. N. Farmer, C. N. Spidell, N. P. Dessert.



CLAUDE B. SCHNEIBLE COMPANY

3991 Lawrence Ave., Chicago, Ill.

SPACES 501-502, BLOCK D-1, AISLE 3, HALL 4



Schneible Multi-Wash Dust Collector Equipment—the wet type collector for handling dust from shake-outs, sand conditioning, core knock-out and cleaning room operations.

"Uni-Flo" Patented Shake-Out Hood for efficient elimination of dust hazards.

New! FiltreFan—a dry type collector for elimination of cupola exhaust nuisance. See it for the first time!

A. SCHRADER'S SON

Div. of Scovill Manufacturing Co. Brooklyn, N. Y.

SPACE 149, BLOCK D, AISLE 1, HALL 1

Machine Operating Controls Safety Operating Controls

General Line of Pneumatic Applications Everything for the Airlines whos

firm:

vita! tute

JUN

SCHRAMM, INC.

West Chester, Pa.

SPACE 368, BLOCK B-5, AISLE 2, HALL 4

"AIR WHERE YOU NEED IT"

BY

SCHRAMM, INC.

Manufacturers of Air Compressors West Chester, Pa.

REPRESENTATIVES: A. O. Witt, Ellston R. Haynes, F. H. Wharton, John B. Lewis.

F. E. SCHUNDLER & CO., INC.

504 Railroad St., Joliet, Ill.

Long Island City, N. Y.

SPACE 260, BLOCK A, HALL 3

Schundle

& CO., Inc.

Producers of

BENTONITE

and FESCO-BOND

Bond Clays Sold With Service

REPRESENTATIVES: A. C. Behrendsen, F. G. Cobb, H. S. Stoller, B. J. Steelman, D. E. Bourrie, C. B. Schureman.

THE SCIENTIFIC CAST PRODUCTS CORP.

Cleveland, Ohio

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Chicago, Ill.

SPACE 205, BLOCK C, HALL 2



PRESSURE CAST MATCHPLATES

Representatives: W. W. Hale, President; W. A. Hilberer, Production; M. E. Kohler, Sales.

SEMET-SOLVAY COMPANY

40 Rector St., New York, N. Y.

SALES OFFICES:

DETROIT — CINCINNATI — BUFFALO — CLEVELAND CANADIAN AGENTS: STANDARD FUEL CO., TORONTO

SPACES 52-54, BLOCK F, AISLE 3, HALL 1

SEMET-SOLVAY FOUNDRY COKE

SEMET-SOLVAY
CORE OVEN COKE

SEYMOUR & PECK COMPANY

Chicago, Illinois

SPACE 49, BLOCK I, AISLE 3, HALL 1



Tri-Ply Foundry Riddles offer these outstanding advantages:

- 1-3-PLY FRAME an exclusive feature.
- 2—SPLIT-PROOF CON-STRUCTION—3-ply frame material cannot split and "run" with the grain.
- 3—NO CROSS WIRES This further increases screen life through elimination of extra abrasion.

SIMPLICITY ENGINEERING COMPANY

Durand, Michigan

SPACE 474, BLOCK D-2, AISLE 4, HALL 4

SHAKE-OUTS FOR ALL SIZES OF FLASKS AND CASTINGS

REPRESENTATIVES: R. C. Johnson, Sales Manager; Geo. Behnke, President; Stan Holzman, Sales Engineer.

An outstanding feature was the ingenuity of exhibitors whose products were not available for display. Many firms cooperated by devoting their time to supplying vital information on availability of supplies and substitute materials, adaptation of present equipment to war work, maintenance, and similar problems.



THE W. W. SLY MANUFACTURING CO.

Cleveland, Ohio

SPACES 481-483, BLOCK E-2, AISLE 4, HALL 4

BLAST CLEANING EQUIPMENT TUMBLING MILLS DUST CONTROL SYSTEMS

REPRESENTATIVES: S. C. Vessy, F. W. Klatt, F. A. Ebeling, G. A. Boesger, C. P. Guion, W. L. Kammerer, Paul Donohue, H. W. Brown, Arthur H. Bond, L. B. Brewster.

THE SMITH FACING & SUPPLY CO.

Cleveland, Ohio

SPACE 91, BLOCK G, AISLE 2, HALL 1



For the past 63 YEARS
"RADIANT FACINGS
have been making
BETTER CASTINGS"

REPRESENTATIVES: Geo. W. Fleig, F. Ray Fleig, E. R. Crosby, C. D. Pinkerton, F. F. Shortsleeve.

SMITH OIL & REFINING CO.

Rockford, Illinois

SPACE 134, BLOCK B, AISLE 1, HALL 1

Rod Dip-L. O. CORE OIL-Liquid Parting

REPRESENTATIVES: O. S. Smith, W. P. Wittke, F. C. Maley, H. J. Hlavka.

No one who inspected the displays of ordnance material presented in all the exhibit halls could avoid being impressed by the tremendous part that cast products are playing in this war. Displays such as this, emphasizing the conversion of industry, made foundrymen more conscious of the fundamental purpose of this Foundry Show: "More Castings for Victory."

THE WERNER G. SMITH COMPANY

Division of Archer-Daniels-Midland Company Cleveland, Ohio

SPACES 236-238, BLOCK G, HALL 2



REPRESENTATIVES: Werner G. Smith, N. A. Boyle, L. P. Robinson, Wm. Rayel, Frank Dodge, Milton Finley, Cam Gore, Ray Hunter, Seward Shaver, Otto Steep, Robert Hunter, Howard Ramsey, Tom Wolfla, Jack King, Clyde Meinhoefer, Walter Doscher, Robert Walter, Ray Teach,

J. L. Blackie, Louis Ferster.

SPENCER TURBINE COMPANY

Hartford, Conn.

SPACES 354-356, BLOCK B-3, AISLE 2, HALL 4

Spencer Multi-Stage Centrifugal Turbo-Compressors for Foundry Cupola Service.

Vacuum Cleaners, heavy duty portables and central systems, general plant cleaning and for removing dust from overhead walls and beams, recommended by Insurance Companies and Health Departments.

REPRESENTATIVES: F. A. Wright, C. S. Gardiner, R. B. Richardson, R. A. Brackett.

SPO, INC.

Cleveland, Ohio

SPACE 465, BLOCK E-1, AISLE 4, HALL 4

PATTERN

MOLDING

VIBRATORS

Al

for

or

JUN

EQUIPMENT

MACHINES

ACCESSORIES

Representatives: Raymond A. Parker, Lester C. Young, Joseph J. Parker, John S. Parker, Geo. Stickney.





Sand handling and conditioning equipment drew many visitors.

THE SPRINGFIELD ALUMINUM PLATE & CASTINGS CO.

Springfield, Ohio

SPACE 47, BLOCK I, AISLE 3, HALL 1

Aluminum Castings and machined parts. Contractors for parts substituted for aluminum. Patterns in Wood or Metal.

Estimates Given.

REPRESENTATIVES: E. A. Parker, Fred Beales, Paul L. Shafer.

STANDARD CONVEYOR COMPANY

North St. Paul, Minnesota Sales and Engineering Service in All Principal Cities

SPACE 467, BLOCK E-1, AISLE 4, HALL 4



Manufacturers of
GRAVITY AND POWER CONVEYORS

REPRESENTATIVES: E. E. Boberg, Frank Janssen, Peter Wego.

THE STANDARD SAND AND MACHINE CO.

549 W. Washington Blvd., Chicago, Ill.

SPACES 342-348, BLOCK B-2, AISLE 2, HALL 4

STANDARD SAND MIXERS



SCREENS AND ELEVATING EQUIPMENT

STANDARD CONTINUOUS BLENDING MACHINE

REPRESENTATIVES: W. C. Packard, B. W. Roberts.

STEEL SHOT & GRIT CO.

Boston, Mass.

SPACES 323-327, BLOCK C-1, AISLE 2, HALL 4

"CERTIFIED STEEL ABRASIVES"

See why leading industries prefer Samson Steel
Shot and Angular Steel Grit.

REPRESENTATIVE: I. A. Diamondstone, Secretary-Treasurer.

THE STERLING GRINDING WHEEL DIVISION

Tiffin, Ohio

SPACES 331-337, BLOCK C-2, AISLE 2, HALL 4

All types of grinding wheels for foundry and steel mill operation. Portable, snagging, weld grinding and other types of wheels. Consulting engineers on all types of grinding.

Manufacturers Since 1885

Brand names-Sterlith and Sterbon

STERLING WHEELBARROW CO.

Milwaukee, Wis.

SPACE 423, BLOCK D-2, AISLE 3, HALL 4

Exhibiting:

ROLLED CHANNEL STEEL FOUNDRY FLASKS
STEEL BOTTOM BOARDS
STEEL CORE PLATES
HARDWOOD WEDGES
WHEELBARROWS

REPRESENTATIVES: R. F. Jordan, R. A. Smith, C. A. Gehrman, F. L. Coyne, G. H. Lambkin, O. E. Steep, H. J. Felsburg, L. T. Crosby, J. A. Patterson, Ray Hunter, J. A. Morrissey, D. D. Baxter.

FREDERIC B. STEVENS, INC.

Headquarters Detroit, Mich.

SPACES 48-50, BLOCK G, AISLE 3, HALL 1

"EVERYTHING



FOR A FOUNDRY" Foundry Facings, Supplies, Equipment and Fire Brick.

Buffing Compositions Electro-Plating Supplies and Equipment

Automatic Plating Machinery Polishing Lathes

THE SUPERIOR SAND CORPORATION

MASSILLON, OHIO

Makers and Shippers of

HIGH-GRADE MOLDING SANDS

AND CORE SANDS

For Gray Iron, Malleable, Brass, Aluminum Castings.

SUTORBILT CORPORATION

Los Angeles

Chicago

SPACE 401, BLOCK D-1, AISLE 3, HALL 4

Rotary Positive Cupola Blowers, Gas Pumps, and Exhausters

REPRESENTATIVES: C. B. Molloy, Wm. W. Meyer, George Tracey, C. Wiljhelm.

SWAN-FINCH OIL CORPORATION

Chicago - New York - Detroit

SPACES 111-113, BLOCK F, AISLE 2, HALL 1

"A Safco Core Oil for every known foundry and core room condition."

REPRESENTATIVES: H. W. Jones, M. H. Steinbrenner, C. L. Bierley, J. S. Schram, H. K. Rose, V. H. Joyce, S. W. Bodman.

Many problems were discussed in unusually attractive booths.



SYNTRON COMPANY

HOMER CITY, PA.

SPACE 409, BLOCK D-2, AISLE 3, HALL 4

Manufacturers of
ELECTRICAL VIBRATORS
and VIBRATING FEEDERS

REPRESENTATIVE: E. Earl Beatty

THE TABOR MANUFACTURING COMPANY

TH

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SP

Philadelphia, Pa.

SPACE 330, BLOCK B-1, AISLE 2, HALL 4

TABOR

FOUNDRY MOLDING MACHINES FOUNDRY EQUIPMENT ABRASIVE CUTOFF MACHINES

REPRESENTATIVES: Leicester S. Lewis, Robert M. Maull, E. L. Tuck, C. H. Ellis, A. B. Eastwood, R. H. Wiehsner, P. J. Shire, H. W. Impey, H. H. Reich.

TAGGART & COMPANY

Philadelphia, Pa.

SPACE 202, BLOCK A, HALL 2

FOUNDRY SANDS AND GRAVEL

REPRESENTATIVES: M. R. Taggart, E. G. Brewer, Sales Manager, J. W. Mentzer, Foundry Engineer, J. H. Hatten, E. M. Taggart, F. F. Shortsleeve, E. F. Vincent.

THE TAMMS SILICA COMPANY

Chicago, Illinois

SPACES 137-139, BLOCK D, AISLE 1, HALL 1

SUPER TAMASTONE
"The Perfect Pattern Compound"

REPRESENTATIVES: Fred Knisley, Walter Hunter, Robert Ekstrom, B. D. Fuller, V. J. Rohe, Alfred A. Grant.



Core making and molding machines as usual drew wide attention.



Core Compounds and products made with them were shown.

THE TITANIUM ALLOY MANUFACTURING CO.

Niagara Falls, New York

SPACES 125-127, BLOCK E, AISLE 1, HALL 1

METALLURGICAL ALLOYS REFRACTORIES



ZIRCONITE MOLD and CORE SAND, FLOURS and WASHES

REPRESENTATIVES: W. G. Wellings, S. T. Harleman, G. F. Comstock, D. A. Thompson, J. M. Johnston, E. T. Goodridge.

TOLEDO SCALE COMPANY

Toledo, Ohio Sales and Service Offices in 181 Cittes

SPACES 343-345, BLOCK C-2, AISLE 2, HALL 4

Manufacturers of industrial scales for all requirements, including heavy-duty steel mill platform scales, motor truck scales, hopper and tank scales, portable and bench scales, counting scales, weight-printing scales. Special balancing, force-measuring and testing devices.



REPRESENTATIVES: D. H. McGhee, G. R. Barr, H. I. Maycock, D. O. Ferris.

Practical foundrymen took great interest in demonstrations.



TUBULAR MICROMETER CO.

St. James, Minnesota

SPACE 409, BLOCK D-2, AISLE 3, HALL 4

TUBULAR MICROMETERS

for

ACCURATE INDUSTRIAL GAUGING

UNITED COMPOUND COMPANY

Buffalo, N. Y.

SPACE 241, BLOCK G, HALL 2

FOR BETTER VENTED CORES



REPRESENTATIVES: William F. Bradley, Pres.; Leslie F. Leney, Treas.

UNITED OIL MFG. COMPANY

Erie, Pa.

SPACES 240-242, BLOCK H, HALL 2

LINBOND Korbond Aqua-Bond Korglaze

REPRESENTATIVES; H. L. Gebhardt, N. R. Seifreit, J. W. Closterman, James F. Pace.

UNITED STATES BUREAU OF MINES

4800 Forbes Street, Pittsburgh, Pa.

SPACES 547-549, BLOCK F, AISLE 5, HALL 4

New Test Instruments:

(1) Bureau of Mines A. C. Carbon Tester—Portable tester for the rapid determination of carbon in steel melts.
(2) Bureau of Mines Thermoelectric Tester—Portable tester for rapidly separating plain carbon steel from alloy steels.
(3) Bureau of Mines Temperature Ferrets—Simple, accurate, economical method of finding the high temperatures in melts.

Safety:

(1) Bureau of Mines Extinguisher for Incendiaries—Most effective agent for extinguishing metal fires.
(2) Bureau of Mines recommendations for preventing metal dust explosions—Basic precautions.

REPRESENTATIVES: H. R. Brown, Dr. I. Hartmann, J. P. Morris, W. P. Rieden, J. P. Riott.

U. S. HOFFMAN MACHINERY CORPORATION

105 Fourth Avenue, New York, N. Y.

SPACES 266-268, BLOCK A, HALL 3

HOFFMAN HEAVY DUTY VACUUM CLEANING UNITS-Portable and Stationary

Demonstrations of floor cleaning and the removal of dust from overhead piping and structural steel work.

See the FAMOUS "HOFFCO-VAC" In Operation

Representatives: L. B. Hardtla, I. E. Bickhart, V. E. Winfeld, R. I. Stephenson, J. H. Schmidt, P. J. Blanchard.



Main Hall, decorated with the flags of all the Western Hemisphere countries, offered this unusually inviting "first view," as an introduction to well over 200 exhibits by cooperating equipment and supplies companies.

THE UNITED STATES GRAPHITE COMPANY

Saginaw, Michigan

SPACE 40, BLOCK G, AISLE 3, HALL 1

MEXICAN GRAPHITE, PLUMBAGO, COR-DIP, NO. 8 MEXICAN GRAPHITE, MEXITE BRIQUETTES

and Other Products of Interest to the Foundryman.

REPRESENTATIVES: R. J. Zemanek, V. L. Thompson, R. J. Edmiston, J. J. Edmiston, A. J. Heindel, E. C. Schrems, R. A. Corrigan, W. H. Beeson, O. R. Miller.

U. S. REDUCTION CO.

East Chicago, Indiana

SPACES 209-210, BLOCK C, HALL 2



NON-FERROUS INGOT METAL ALUMINUM, BRASS, BRONZ

All compositions of guaranteed specifications and quality.

REPRESENTATIVES: E. A. Bergman, L. F. Wind, E. A. Heilbronn, Harry A. Brown, S. G. Fitzpatrick, M. L. Kaufmann, Walter Nochumson.

JU

VANADIUM CORPORATION OF AMERICA

420 Lexington Avenue, New York City, N. Y. Pittsburgh - Chicago - Cleveland - Detroit

SPACES 207-208, BLOCK C, HALL 2

FERRO - ALLOYS for the Foundry Industry

REPRESENTATIVES: Ward A. Miller, Gustav Laub, John W. Lohnes, L. F. Johnson, G. A. Fritschi, D. C. Hostettler, J. B. Girdler, H. E. Orr, Jerome Strauss, A. W. Demmler, D. L. Edlund, T. W. Merrill, Henry T. Chandler, C. N. Dawe, B. B. Beckwith, L. G. Tinkler, Walter Smith, George A. Weiler, R. G. McElwee, T. E. Barlow.

VESUVIUS CRUCIBLE CO.

Swissvale, Pa.

SPACE 93, BLOCK G. AISLE 2, HALL 1

GRAPHITE CRUCIBLES

Standard and special shapes of all sizes for melting Brass, Bronze, Aluminum, Nickel Alloys, Steel and Iron.

GRAPHITE STOPPER HEADS

REPRESENTATIVES: Alan Arensberg, A. W. Protheroe, H. C. Sorenson, J. R. Covert, F. J. Ray, C. M. Cooke, R. H. Stone.

THE WADSWORTH CORE MACHNE & EQUIPMENT CO., Inc.

AKRON, OHIO

SPACE 42, BLOCK G, AISLE 3, HALL 1

CORE ROOM EQUIPMENT

Core-Making Machines Core Cutting-Off and Coning Machines Steel Reinforced Core and Bottom Plates

Representatives: M. C. Sammons, Secretary; W. R. Ludwick, William Berger.

WALKER MANUFACTURING COMPANY

RACINE, WISCONSIN

SPACE 432, BLOCK C-3, AISLE 3, HALL 4

WALKER ELECTRIC INDUSTRIAL LIFTS

For Economical Lifting, Loading and Unloading

Representatives: Hugh A. Walker, Industrial Sales Manager; P. S. Ward, Salesman; W. H. Jaynes, Salesman.

JUNE, 1942

I. D. WALLACE & CO.

Chicago, Illinois

SPACE 334, BLOCK B-1, AISLE 2, HALL 4

Patternmaking and woodworking machinery, and the Wallace Metal-Cutting Radial Saw.

Wallace machines for patternmaking exhibited in the Cleveland Trade School operating classes, booths 372 to 376.

REPRESENTATIVES: J. D. Wallace, President; F. W. Andresen, District Sales Mgr.

WESTERN METAL COMPANY

2016-2036 W. Carroll Avenue, Chicago, Illinois

SPACE 56, BLOCK F, AISLE 3, HALL 1

BRASS ALUMINUM

ALLOY INGOT METALS

MANGANESE BRONZE NICKEL SILVER

ALUMINUM BRONZE

SPECIAL ALLOYS

"Ingots to Your Specifications"

REPRESENTATIVES: Max Z. Goldfein, Oscar Goldfein, Robert Goldfein, A. G. Jason, Bernard Dunne, Irving Zellman, M. C. Sherling.

WHITEHEAD BROTHERS COMPANY

Buffalo - New York - Providence

SPACES 274-276, BLOCK A, HALL 3

Industrial Sands for Grey Iron Malleable, Non-Ferrous and Steel Foundry Use.

FACEAMOL SHAKE-ON NON-SILICA PARTING

STEEL ABRASIVES NON-SILICA PARTING SEACOAL FACING DRY CORE COMPOUND QUANDT CORE OIL

REPRESENTATIVES: C. B. Somers, Fred Mosley, B. E. Beldin, F. B. Clarke, B. D. Fuller, R. J. Maddison, A. W. Van Vleck, B. S. Reed, W. S. Slater, A. J. McBride.

Aluminum castings for aircraft excited a great deal of interest.



WHITING CORPORATION

Harvey, Ill. (Chicago Suburb)

SPACES 310 to 316



BLOCK A-2, AISLE 1, HALL 4

PRODUCTION EQUIPMENT FOR VICTORY

HARRY J. WOLF SHOE CO.

At the Show: SPACE 128 BLOCK B, AISLE 1, HALL 1

STEEL TOE MOLDER SHOES



At Home: SHEBOYGAN, WISCONSIN

PLAIN TOE MOLDER SHOES

Pioneers of Industrial Safety Shoes of All Kinds

THE YALE & TOWNE MANUFACTURING CO.

4530 Tacony Street, Philadelphia, Pa.

SPACE 361, BLOCK C-3, AISLE 2, HALL 4

MATERIALS HANDLING EQUIPMENT,
INCLUDING ELECTRIC INDUSTRIAL TRUCKS,
HAND LIFT TRUCKS AND SKID PLATFORMS,
ELECTRIC HOISTING EQUIPMENT AND
HAND CHAIN HOISTS.

REPRESENTATIVES: A. H. Dobler, E. M. Abramson, A. P. Carstensen, F. A. Dewey, Wm. McGreevy, M. G. Peck, W. G. Tipton, S. W. Gibb.

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THE ZANESVILLE SAND COMPANY

Zanesville, Ohio

SPACE 8, BLOCK I, AISLE 4, HALL 1

FOUNDRY SANDS, CLAY, STEEL ABRASIVES

Representatives: F. G. Flegal, Secretary-Treasurer; Harry M. Flegal, Vice-President; Robert P. Flegal, Salesman.

The 1942 Foundry Show, the first "Win-the-War" foundry show of World War II, goes down in history as one of the most successful ever held . . . in exhibitor enthusiasm and cooperation, in record attendance of foundry executives and key operating men, and in fulfilling its basic purpose of aiding America's Victory program.



GUIDE TO PRODUCTS of 1942 Exhibitor Companies

For ready reference purposes, products and services of foundry equipment and supplies companies who exhibited at the 1942 Foundry Show are listed on the following pages, classified in Guide form. More complete descriptions of these products and services will be found in the alphabetical Directory of Exhibitors, on preceding pages.

ABRASIVES (Blasting)

The American Foundry Equipment Co., Mishawaka, Ind.
American Steel Abrasives Co., Galion, Ohio.
Delhi Foundry Sand Co., Sayler Park Station, Cincinnati, Ohio.
The Globe Steel Abrasive Co., Mansfield, Ohio.
Great Lakes Foundry Sand Co.,
United Artists Bldg., Detroit, Michigan Williams & Co., 230 N.
Michigan Ave., Chicago, Ill.
Pangborn Corp., Hagerstown, Md.
Parsons Engineering Corp., 3599 E.
82nd St., Cleveland, Ohio. Peerless Mineral Products Co., Conneaut, Ohio.
Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.
George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa.
Pittsburgh Crushed Steel Co., 4839 Harrison St., Pittsburgh, Pa.
The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland, Ohio.
Steel Shot & Grit Co., Boston, Mass. Whitehead Bros. Co., 537 W. 27th St., New York.
Zanesville Sand Co., Zanesville, Ohio. Conneaut, Ohio.

ABRASIVES (Grinding)

Bay State Abrasive Products Co., Westboro, Mass.
Macklin Co., Jackson, Mich.
Mall Tool Co., 7740 So. South Chicago Ave., Chicago, Ill.
Mid-West Abrasive Co., 2189 Beaufait Detroit Mich. fait, Detroit, Mich.
Sterling Grinding Wheel Div., Cleve-land Quarries Co., Tiffin, Ohio.

Zanesville Sand Co., Zanesville, Ohio.

AERATORS

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The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio. National Engineering Co., 549 W. Washington Blvd., Chicago, Ill. Newaygo Engineering Co., Newaygo, Mich. Royer Foundry & Machine Co., Kingston, Pa.

AIR COMPRESSORS

Campbell-Hausfeld Co., Harrison, Ohio. Schramm, Inc., West Chester, Pa.

AIR SEPARATORS

American Air Filter Co., Inc., Louisville, Ky. JUNE, 1942

Jas. A. Murphy & Co., Hamilton, Ohio. Parsons Engineering Corp., 3589 E. 82nd St., Cleveland, Ohio.

ALLOY BRIQUETS

Federated Metals Div., American Smelting & Refining Co., 2230 In-dianapolis Blvd., Whiting, Ind. Hickman, Williams & Co., 230 N. Michigan Ave., Chicago, Ill.

ALLOYS (Ferrous)

Electro Refractories & Alloys Corp., 662 Andrews Bldg., Buffalo, N. Y. Hickman, Williams & Co., 230 N. Michigan Ave., Chicago, Ill. The International Nickel Co., Inc., 67 Wall St., New York, N. Y. The Titanium Alloy Mfg. Co., Niagara Falls, N. Y. Vanadium Corporation of America, 420 Lexington Ave., New York. 420 Lexington Ave., New York, New York.

The Ajax Metal Co., 46 Richmond

ALLOYS (Non-Ferrous)

St., Philadelphia, Pa.
L. A. Cohn & Bro., Inc., 5429 W.
Roosevelt Rd., Chicago, Ill. Duquesne Smelting Corp., 50-33rd St., Pittsburgh, Pa. St., Pittsburgh, Pa.
Electro Refractories & Alloys Corp.,
662 Andrews Bldg., Buffalo, N. Y.
Federated Metals Div., American
Smelting & Refining Co.,
Whiting, Ind.
Frontier Bronze Corp.,
Niagara Falls, N. Y.
Benjamin Harris & Co., 11th and
State Sts., Chicago Heights, Ill.
The International Nickel Co., Inc., The International Nickel Co., Inc., 67 Wall St., New York, N. Y. H. Kramer & Co., 21st and Loomis H. Kramer & Co., 21st and Loomis Sts., Chicago, Ill.
R. Lavin & Sons, Inc., 3426 S. Kedzie Ave., Chicago, Ill.
Michigan Smelting & Refining Co., 1400 Lafayette Bldg., Detroit, Mich.
Niagara Falls Smelting & Refining Corp., 2204 Elmwood Ave., Buffalo, N. Y.
U. S. Reduction Co., Melville and U. S. Reduction Co., Melville and Chicago Aves., East Chicago, Ind. Western Metal Co., 2016-2036 W. Carroll Ave., Chicago, Ill.

BEARINGS

Dodge Mfg. Corp., Mishawaka, Ind. Robins Conveying Belt Co., Passaic, N. J.

United States Graphite Co., Holland Ave., Saginaw, Mich.

BELTING

E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa. Robins Conveying Belt Co., Passaic, N. J.

BLAST CLEANING EQUIPMENT (Air)

The American Foundry Equipment The American Foundry Equipment Co., Mishawaka, Ind.
Hydro-Blast Corp., 3118 Clybourn Ave., Chicago, Ill.
Pangborn Corp., Hagerstown, Md.
Parsons Engineering Corp., 3599 E.
82nd St., Cleveland, Ohio.
Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts.,
Philadelphia. Pa. Philadelphia, Pa.
The W. W. Sly Mfg. Co., 4700 Train
Ave., Cleveland, Ohio.
The Tabor Mfg. Co., 6225 Tacony
St., Philadelphia, Pa.

BLAST CLEANING EQUIPMENT (Airless)

The American Foundry Equipment Co., Mishawaka, Ind. Hydro-Blast Corp., 3118 Clybourn Ave., Chicago, Ill. Pangborn Corp., Hagerstown, Md. The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland, Ohio.

BLAST CLEANING EQUIPMENT (Hydraulic)

Hydro-Blast Corp., 3118 Clybourn Ave., Chicago, Ill. Pangborn Corp., Hagerstown, Md. Whiting Corp., Harvey, Ill.

BLOW VALVES

Arcade Mfg. Co., Freeport, Ill.
Chicago Mfg. & Distributing Co.,
1928 W. 46th St., Chicago, Ill.
The Freeman Supply Co., 1152 E.
Broadway, Toledo, Ohio.
The Hill & Griffith Co., 1262 State
Ave., Cincinnati, Ohio.
S. Obermayer Co., 2563 W. 18th St.,
Chicago, Ill. Chicago, Ill. Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

A. Schrader's Son, 470 Vanderbilt Ave., Brooklyn, N. Y.

The Tabor Mfg. Co., 6225 Tacony St., Philadelphia, Pa.

BLOWER AND OIL PUMP (Combination)

The Campbell-Hausfeld Co., Harrison, Ohio.
Fisher Furnace Co., 1740 N. Kolmar
Ave., Chicago, Ill.
General Blower Co., 406 N. Peoria St., Chicago, Ill. Spencer Turbine Co., Hartford, Conn. Sutorbilt Corp., Los Angeles, Calif.

BLOWERS

The Campbell-Hausfeld Co., Harrison, Ohio. Harrison, Ohio.
Fisher Furnace Co., 1740 N. Kolmar Ave., Chicago, Ill.
General Blower Co., 406 N. Peoria St., Chicago, Ill.
Mahr Mfg. Co., Div. Diamond Iron Works, Minneapolis, Minn.
Martindale Electric Co., Box 617, Edgewater Branch, Cleveland, Ohio. Ohio. Ohio.

Monarch Engineering & Mfg. Co., Curtis Bay, Baltimore, Md.

Parsons Engineering Corp., 3599 E. 82nd St., Cleveland, Ohio.

Spencer Turbine Co., Hartford, Conn. Sutorbilt Corp., Los Angeles, Calif. United States Hoffman Machinery Corp., 105 Fourth Ave., New York, N. Y.

Whiting Corp., Harvey, Ill. Whiting Corp., Harvey, Ill.

BOTTOM BOARDS

Adams Co., 100 E. Fourth St., Dubuque, Iowa. Black, Sivalls & Bryson, Inc., 7500 E. 10th St., Kansas City, Mo. Dougherty Lumber Co., 4300 E. 68th St., Cleveland, Ohio. S. Obermayer Co., 2563 W. 18th St., Chicago, Ill. Rietz Lumber Co., 1800 N. Central Park Ave., Chicago, Ill.

BOTTOM BOARDS (Metal)

J. S. McCormick Co., 25th & A. V. R. R., Pittsburgh, Pa. Sterling Wheelbarrow Co., Milwaukee, Wis.
Wadsworth Core Machine & Equipment Co., Inc., Akron, Ohio.

BRICK (Refractory)

Harrison, Ohio.
Chicago Retort & Fire Brick Co.,
208 S. La Salle St., Chicago, Ill.
Illinois Clay Products Co., 608 S.
Dearborn St., Chicago, Ill.
Ironton Fire Brick Co.,
Ironton, Ohio.
Laya Crucible Co. of Division The Campbell-Hausfeld Co., Lava Crucible Co. of Pittsburgh, Wabash Bldg., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th
St., Chicago, Ill.
Peerless Mineral Products Co., Conneaut, Ohio.
Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa. Pyro Clay Products Co., Oak Hill, Ohio. Frederic B. Stevens, Inc., 3r Larned Sts., Detroit, Mich. 3rd and

The Titanium Alloy Mfg. Co., Niagara Falls, N. Y. Zanesville Sand Co., Zanesville, Ohio.

BRIQUETTING MACHINES

Grob Brothers, Grafton, Wis.
Milwaukee Foundry Equipment Co.,
3238 W. Pierce St., Milwaukee,

BUCKETS (Clamshell)

C. O. Bartlett & Snow Co., 62: Harvard Ave., Cleveland, Ohio. Blaw-Knox Co., Pittsburgh, Pa.

BUFFING AND POLISHING MACHINES

Freeman Supply Co., Toledo, Ohio. Mall Tool Co., 7740 S. South Chicago Ave., Chicago, Ill.
Frederic B. Stevens, Inc., 3rd &
Larned Sts., Detroit, Mich.

CEMENT (For Abrasive Discs)

Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio.

CEMENT (Refractory) American Crucible Co.,

American Crucible Co.,
Shelton, Conn.
Buckeye Products Co., 7020-34 Vine
St., Cincinnati, Ohio.
Chicago Retort & Fire Brick Co., 208
S. La Salle St., Chicago, Ill.
Cleveland Quarries Co., 1125 Builders Exchange, Cleveland, Ohio.
Detroit Electric Furnace Div., Kuhlman Electric Co., Bay City, Mich.
Joseph Dixon Crucible Co.,
Jersey City, N. J.
Electro Refractories & Alloys Corp.,
662 Andrews Bldg., Buffalo, N. Y.
Fisher Furnace Co., 1740 N. Kolmar
Ave., Chicago, Ill.
The Hill & Griffith Co., 1262 State
Ave., Cincinnati, Ohio.
Hoffman Foundry Supply Co., 1193
Main Ave., Cleveland, Ohio.
Illinois Clay Products Co., Joliet, Ill.
Ironton Fire Brick Co., Ironton Fire Brick Co.,
Ironton, Ohio.
Kindt-Collins Co., 12651 Elmwood
Ave., Cleveland, Ohio.
Lava Crucible Co. of Pittsburgh,
Wabash Bldg., Pittsburgh, Pa.
J. S. McCormick Co., 25th & A. V.
R. R., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th
St., Chicago, III.
Pennsylvania Foundry Supply &
Sand Co., Ashland & E. Lewis Sts.,
Philadelphia, Pa.
George F. Pettinos, Inc., 1206
Locust St., Philadelphia, Pa.
Pyro Clay Products Co., Ironton Fire Brick Co., Pyro Clay Products Co., Oak Hill, Ohio. Ramtite Co., Div. of S. Obermayer Co., 2563 W. 18th St., Chicago, Ill. The Titanium Alloy Mfg. Co., Niagara Falls, N. Y. CHAPLETS

Combined Supply & Equipment Co., Inc., 215 Chandler St., Buffalo, New York.

Fanner Mfg. Co., Brookside Park, Cleveland, Ohio. Federal Foundry Supply Co., 4600 E.
71st St., Cleveland, Ohio.
The Freeman Supply Co., 1152 E.
Broadway, Toledo, Ohio.
The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

Hoffman Foundry Supply Co., 1193 Main Ave., Cleveland, Ohio. J. S. McCormick Co., 25th St. and A. V. R. R., Pittsburgh, Pa. The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill. ennsylvania Foundry Pennsylvania Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa. Frederic B. Stevens, 3rd and Larned Sts., Detroit, Mich.

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CLAY (Bonding)

Albany Sand & Supply Co.,

Albany, N. Y. Ayers Mineral Co., Zanesville, Ohio. Ayers Mineral Co., Zanesville, Ohio.
Delhi Foundry Sand Co., Sayler Park
Station, Cincinnati, Ohio.
Eastern Clay Products, Inc.,
Eifort, Ohio.
Federal Foundry Supply Co., 4600
E. 71st St., Cleveland, Ohio.
Freeman Supply Co., Toledo, Ohio.
Great Lakes Foundry Sand Co.,
United Artists Bldg.,
Detroit, Mich. Detroit, Mich. The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.
Illinois Clay Products Co., 608 S.
Dearborn St., Chicago, Ill. Ironton Fire Brick Co., J. S. McCormick Co., 25th St. and A. V. R. R., Pittsburgh, Pa. Peerless Mineral Products Co., Conneaut, Ohio. George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa.

Pyro Clay Products Co.,
Oak Hill, Ohio.

F. E. Schundler & Co., Inc., Joliet, Ill.

Tamms Silica Co., 228 N. La Salle St., Chicago, Ill.

Whitehead Bros. Co., 537 W. 27th St., New York, N. Y.

CLAY (Fire) Albany Sand & Supply Co., Albany, N. Y. American Crucible Co., Shelton, Conn.
Chicago Retort & Fire Brick Co.,
208 S. La Salle St., Chicago, Ill.
Delhi Foundry Sand Co., Sayler Park Station, Cincinnati, Ohio. Eastern Clay Products, Inc., Eifort, Ohio. Great Lakes Foundry Sand Co., 720 United Artists Bldg., Detroit, Mich. The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

Illinois Clay Products Co., 608

Dearborn St., Chicago, Ill.

Ironton Fire Brick Co.,

Ironton, Ohio.

Peerless Mineral Products Co., 608 S. Conneaut, Ohio. Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa. Pyro Clay Products Co., Oak Hill, Ohio. F. E. Schundler & Co., Inc., 504 Rail-road St., Joliet, Ill. Whitehead Brothers Co., 537 W. 27th St., New York, N. Y. Zanesville Sand Co., Zanesville, Ohio.

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Freeman Supply Co., Toledo, Ohio. Hickman, Williams & Co., 230 N. Michigan Ave., Chicago, Ill. The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.
The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Republic Coal & Coke Co., 8 S.

Michigan Ave., Chicago, Ill.

Whitehead Brothers Co., 537 W. 27th

St., New York, N. Y.

COKE (Foundry)

Great Lakes Foundry Sand Co., United Artists Bldg., Detroit, Mich.
Hickman, Williams & Co., 230 N.
Michigan Ave., Chicago, Ill.
Republic Coal & Coke Co., 8 S.
Michigan Ave., Chicago, Ill.
Semet-Solvay Co., 40 Rector St.,
New York, N. Y.

COKE (Petroleum)

Republic Coal & Coke Co., 8 S. Michigan Ave., Chicago, Ill.

CONVERTERS (Steel)

Whiting Corp., Harvey, Ill.

CONVEYING EQUIPMENT

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio. Dodge Mfg. Corp., Mishawaka, Ind. Mathews Conveyer Co., Ellwood City, Pa. National Engineering Co., 549 W. Washington Blvd., Chicago, Ill. Newaygo Engineering Co., Newaygo, Mich.
Robins Conveying Belt Co.,
Passaic, N. J.
Standard Conveyor Co., North St. Paul, Minn. Syntron Co., Homer City, Pa.

CORE AND MOLD WASHES

Dayton Oil Co., 1201 E. Monument Ave., Dayton, Ohio. Delta Oil Products Co., Milwaukee, Wis. Oiless Core Binder Co., Cleveland, Ohio.
Smith Facing & Supply Co., 1857
Carter Rd., Cleveland, Ohio.
Smith Oil & Refining Co.,
Rockford, Ill.
Titanium Alloy Mfg. Co., Niagara
Falls, N. Y.

CORE BINDERS AND COMPOUNDS

Buckeye Products Co., 7020-34 Vine St., Cincinnati, Ohio.

Certified Core Oil & Mfg. Co., 3308 So. Cicero Ave., Chicago, III. Corn Products Sales Co., 17 Battery Place, New York, N. Y. The Dayton Oil Co., 1201 E. Monu-

The Dayton Oil Co., 1201 E. Monument Ave., Dayton, Ohio.

Delta Oil Products Co., Sta. F., P.
O. Box 235, Milwaukee, Wis.

Eastern Clay Products, Inc.,
Eifort, Ohio.

Federal Foundry Supply Co., 4600
E. 71st St., Cleveland, Ohio.

The Freeman Supply Co., 1152 E.
Broadway, Toledo, Ohio.

Hercules Powder Co.

Hercules Powder Co., Wilmington, Del. The Hill & Griffith Co., 1262 State

Ave., Cincinnati, Ohio.

Hoffman Foundry Supply Co., 1193

Moffman Foundry Supply Co., 1193
Main Ave., Cleveland, Ohio.
J. S. McCormick Co., 25th St. and
A. V. R. R., Pittsburgh, Pa.
H. E. Mills Mfg. Co., 6390 Park
Ave., Cleveland, Ohio.
Oiless Core Binder Co.,
Cleveland, Ohio.

The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.
Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts.,

Sand Co., Ashiand & E. Lewis Sts., Philadelphia, Pa. Penola, Inc., 34th & Smallman Sts., Pittsburgh, Pa. George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa. F. E. Schundler & Co., Inc., 504 Rail-

road St., Joliet, Ill.
The Werner G. Smith Co., Div.
Archer-Daniels Midland Co., 2191
W. 110th St., Cleveland, Ohio.
The Smith Facing & Supply Co.,

The Smith Facing & Supply Co., 1857 Carter, Cleveland, Ohio. Smith Oil & Refining Co., Rockford, Ill.

Frederic B. Stevens, Inc., 3rd and Larned Sts., Detroit, Mich.

Swan-Finch Oil Corp., 201 N. Wells

St., Chicago, Ill.
United Oil Mfg. Co., Erie, Pa.
Whitehead Bros. Co., 537 W. 27th
St., New York, N. Y.

CORE BLOWERS

Champion Foundry & Machine Co., 1314 W. 21st St., Chicago, Ill. Wm. Demmler & Bros., Kewanee, Ill. International Molding Machine Co., 2608-2624 W. 16th St., Chicago, Ill. The Osborn Mfg. Co., 5401 Hamilton Ave., Cleveland, Ohio.

CORE BOX CLEANER

J. S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa. Smith Oil & Refining Co., Rockford, Ill.

CORE CONVEYING EQUIPMENT

Chicago Mfg. & Distributing Co., 1928 W. 46th St., Chicago, Ill. Mathews Conveyer Co., Ellwood City, Pa. Sterling Wheelbarrow Co., Milwaukee, Wis.

CORE CRUSHERS

C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio.

National Engineering Co., 549 W. Washington Blvd., Chicago, Ill. Newaygo Engineering Co., Newaygo, Mich.

CORE GRINDERS

Milwaukee Foundry Equipment Co., 3238 W. Pierce St., Milwaukee, Wis. Wadsworth Core Machine & Equipment Co., Inc., Akron, Ohio.

CORE KNOCKOUT EQUIPMENT

J. S. McCormick Co., 25th & A. V. R. R., Pittsburgh, Pa. Productive Equipment Corp., 4600 S. Kedzie Ave., Chicago, Ill. Robins Conveying Belt Co., Passaic, N. J.
Simplicity Engineering Co.,
Durand, Mich.

CORE MAKING MACHINES

Champion Foundry & Machine Co., 1314-24 W. 21st St., Chicago, Ill. Federal Foundry Supply Co., 4600 E. 71st St., Cleveland, Ohio. Grimes Molding Machine Sales, 1429 Virginia Park, Detroit, Mich. Herman Pneumatic Machine Co., 1806 Union Bank Bldg., Pittsburgh Pa Pittsburgh, Pa.
International Molding Machine Co.,
2608 W. 16th St., Chicago, Ill. Milwaukee Foundry Equipment Co., 3238 W. Pierce St., Milwaukee, Wis. sborn Mfg. Co., 5401 Ave., Cleveland, Ohio. 5401 Hamilton Osborn Republic Structural Iron Works, 1290 E. 53rd St., Cleveland, Ohio. Tabor Mfg. Co., 6225 Tacony Ave., Philadelphia, Pa. Wadsworth Core Machine & Equipment Co., Inc., Akron, Ohio.

CORE OILS

Buckeye Products Co., 7020-34 Vine St., Cincinnati, Ohio.
Certified Core Oil & Mfg Co., 3308 S. Cicero Ave., Cicero, Ill.
The Dayton Oil Co., 1201 E. Monument Ave., Dayton, Ohio.
Delta Oil Products Co., Sta. F, P. O. Box 235, Milwaukee, Wis.
The Freeman Supply Co., 1152 E. Broadway, Toledo, Ohio.
The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.
Hoffman Foundry Supply Co., 1193 Main Ave., Cleveland, Ohio.
E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa. erset St., Philadelphia, Pa. Penola, Inc., 34th & Smallman Sts., Pittsburgh, Pa. Pittsburgh, Pa.
The Werner G. Smith Co., Div.
Archer-Daniels Midland Co., 2191
W. 110th St., Cleveland, Ohio.
Smith Oil & Refining Co.,
Rockford, Ill.
Frederic B. Stevens, Inc., 3rd and
Larned Sts., Detroit, Mich.
Swan-Finch Oil Corp., 201 N. Wells
St. Chicago, Ill. St., Chicago, Ill.
United Oil Mfg. Co., Erie, Pa.
Whitehead Bros. Co., 537 W. 27th
St., New York, N. Y.

CORE OVENS

Baker Perkins, Inc., Saginaw, Mich. The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio. Cleveland Blow Pipe & Mfg. Co., 6505 Cedar Ave., Cleveland, Ohio.

6505 Cedar Ave., Cleveland, Onio.
Despatch Oven Co.,
Minneapolis, Minn.
The Foundry Equipment Co., 1831
Columbus Rd., Cleveland, Ohio.
The Freeman Supply Co., 1152 E.
Broadway, Toledo, Ohio.
The Hill & Griffith Co., 1262 State

Ave., Cincinnati, Ohio.

Mahr Mfg. Co., Div., Diamond Iron
Works, Inc., Minneapolis, Minn.
J. S. McCormick Co., 25th St. and
A. V. R. R., Pittsburgh, Pa.

Monarch Engineering and Mfg. Co.,
Baltimore, Md.

The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.
Frederic B. Stevens, Inc., 3rd and Larned Sts., Detroit, Mich.
The Tabor Mfg. Co., 6225 Tacony St., Philadelphia, Pa.

CORE PLATES

Chicago Mfg. & Distributing Co., 1928 W. 46th St., Chicago, Ill. Republic Structural Iron Works, 1290 E. 53rd St., Cleveland, Ohio. Sterling Wheelbarrow Co., Milwaukee, Wis.

CORE RACKS

Chicago Mfg. & Distributing Co., 1928 W. 46th St., Chicago, Ill. Foundry Equipment Co., 1831 Colum-bus Rd., N. W., Cleveland, Ohio. Republic Structural Iron Works, 1290 E. 53rd St., Cleveland, Ohio.

CORE ROD STRAIGHTENERS AND SHEARING MACHINERY

American Foundry Equipment Co., Mishawaka, Ind.

CORE TESTING EQUIPMENT

Harry W. Dietert Co., 9330 W. Rose-lawn Ave., Detroit, Mich.

COREROOM EQUIPMENT

Chicago Mfg. & Distributing Co., 1928 W. 46th St., Chicago, Ill. Cleveland Blow Pipe & Mfg. Co., 6505 Cedar Ave., Cleveland, Ohio. Foundry Equipment Co., 1831 Columbus Rd., Cleveland, Ohio. Freeman Supply Co., 1152 E. Broadway, Toledo, Ohio. Great Western Mfg. Co., Leavenworth, Kans.

The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.
Lancaster Iron Works, Inc., Lancaster Iron Works, Inc., Lancaster, Pa. Lancaster, Pa.

J. S. McCormick Co., 25th St. and A. V. R. R., Pittsburgh, Pa.

National Engineering Co., 549 W. Washington Blvd., Chicago, Ill.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia Pa.

Philadelphia, Pa.
Standard Sand & Machine Co., 549
W. Washington Blvd., Chicago, Ill.
Wadsworth Core Machine & Equipment Co., Inc., Akron, Ohio.

CRANES (Foundry)

Conco Engineering Works, Div. of H. D. Conkey & Co., Mendota, Ill. Modern Equipment Co., Port Washington, Wis Whiting Corp., Harvey, Ill.

CRANES (Tractor)

Automatic Transportation Co., 101 W. 87th St., Chicago, III. Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland, Ohio. Yale & Towne Mfg. Co., 4530 Ta-cony St., Philadelphia, Pa.

American Crucible Co., 283 Canal

CRUCIBLES

St., Shelton, Conn.
Joseph Dixon Crucible Co.,
Jersey City, N. J. Jersey City, N. J. Electro Refractories & Alloys Corp., Ruffalo, N. Y. 662 Andrews Bldg., Buffalo, N. Y.
The Hill & Griffith Co., 1262 State
Ave., Cincinnati, Ohio.
Lava Crucible Co. of Pittsburgh,
Wabash Bldg., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa. Frederic B. Stevens, Inc., 31 Larned Sts., Detroit, Mich. 3rd and

Vesuvius Crucible Co., Swissvale, Pa.

CUPOLA AND LADLE REFRACTORIES

Albany Sand & Supply Co., Albany, N. Y. The Alpha-Lux Co., Inc., 155 John St., New York, N. Y. St., New York, N. Y.

American Crucible Co.,
Shelton, Conn.

Chicago Retort & Fire Brick Co.,
208 S. La Salle St., Chicago, Ill.
Cleveland Quarries Co., 1125 Builders Exchange, Cleveland, Ohio.
Delhi Foundry Sand Co., Sayler Park
Station, Cincinnati, Ohio.
Great Lakes Foundry Sand Co.,
United Artists Bldg.. United Artists Bldg.,
Detroit, Mich.
The Hill & Griffith Co., 1262 State
Ave., Cincinnati, Ohio.
Illinois Clay Products Co., 608 S.
Dearborn St., Chicago, Ill. Ironton Fire Brick Co.,

Ironton, Ohio.
Lava Crucible Co. of Pittsburgh,
Pittsburgh, Pa.
Peerless Mineral Products Co., Conneaut, Ohio. Pennsylvania Foundry Supply

Sand Co., Ashland & E. Lewis Sts.,

Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa.

Pyro Clay Products Co., Oak Hill, Ohio.

Ramtite Co., Div. of S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Frederic B. Stevens, Inc., 3rd and Larned Sts., Detroit, Mich.

United States Graphite Co., 1621 Holland Ave., Saginaw, Mich.

CUPOLA BLOWERS

The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio. J. S. McCormick Co., 25th St. and A. V. R. R., Pittsburgh, Pa. Spencer Turbine Co., Hartford, Conn. Whiting Corp., Harvey, Ill.

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CUPOLA CHARGERS

Modern Equipment Co., Port Washington, Wis. Whiting Corp., Harvey, Ill.

CUPOLA CONTROL EQUIPMENT

Edwin S. Carman, Inc., 1643 Lee Rd., Cleveland, Ohio. J. S. McCormick Co., 25th St. and A. V. R. R., Pittsburgh, Pa. Spencer Turbine Co., Hartford, Conn. Whiting Corp., Harvey, Ill.

CUPOLA DUST COLLECTORS

American Air Filter Co., Inc., American Air Filter Co., Inc.,
Louisville, Ky.
The C. O. Bartlett & Snow Co., 6200
Harvard Ave., Cleveland, Ohio.
Parsons Engineering Corp., 3599 E.
82nd St., Cleveland, Ohio.
Claude B. Schneible Co., 3951 Lawrence Ave., Chicago, Ill. Whiting Corp., Harvey, Ill.

CUPOLA LIGHTING TORCHES

Mahr Mfg. Co., Div. Diamond Iron Works, Minneapolis, Minn.

CUPOLAS

Modern Equipment Co.,
Port Washington, Wis.
The Tabor Mfg. Co., 6225 Tacony
St., Philadelphia, Pa. Whiting Corp., Harvey, Ill.

CUTOFF MACHINES (Abrasive)

Adolph I. Buehler, 228 N. La Salle St., Chicago, Ill. De Walt Products Corp., Lancaster, Pa.
Tabor Mfg. Co., 6225 Tacony St.,
Philadelphia, Pa.
J. D. Wallace & Co., 134 S. California Ave., Chicago, Ill.

DIE SINKING MACHINES

Mall Tool Co., 7740 South Chicago Ave., Chicago, Ill. Martindale Electric Co., Box 617, Edgewater Br., Cleveland, Ohio.

DUST COLLECTING EQUIPMENT (Dry)

American Air Filter Co., Inc., 215 Central Ave., Louisville, Ky. The American Foundry Equipment Co., Mishawaka, Ind.
C. O. Bartlett & Snow Co., 6200
Harvard Ave., Cleveland, Ohio.
The Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio.

Pangborn Corp., Hagerstown, Md. Pangborn Corp., Hagerstown, Md.
Parsons Engineering Corp., 3599 E.
82nd St., Cleveland, Ohio.
Pennsylvania Foundry Supply &
Sand Co., Ashland & E. Lewis Sts.,
Philadelphia, Pa.
The W. W. Sly Mfg. Co., 4700 Train
Ave., Cleveland, Ohio.
The Tabor Mfg. Co., 6225 Tacony
St. Philadelphia Pa. St., Philadelphia, Pa.

DUST COLLECTING **EQUIPMENT (Wet)**

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American Air Filter Co., Inc., 215 Central Ave., Louisville, Ky. The American Foundry Equipment Co., Mishawaka, Ind.
The C. O. Bartlett & Snow Co., 6200
Harvard Ave., Cleveland, Ohio. Parsons Engineering Corp., 3599 E. 82nd St., Cleveland, Ohio. Claude B. Schneible Co., 3951 Lawrence Ave., Chicago, Ill. Whiting Corp., Harvey, Ill.

ELECTRO-PLATING EQUIPMENT

Frederic B. Stevens, Inc., 3rd & Larned Sts., Detroit, Mich.

FACINGS (Foundry)

Albany Sand & Supply Co., Albany, N. Y. Combined Supply & Equipment Co., Inc., 215 Chandler St., Buffalo, Inc., 215 New York. New York.

Delhi Foundry Sand Co., Sayler Park Sta., Cincinnati, Ohio.

Delta Oil Products Co., Sta. F, P. O. Box 235, Milwaukee, Wis. Joseph Dixon Crucible Co., Jersey City, N. J.

Federal Foundry Supply Co., 4600 E. 71st St., Cleveland, Ohio.

The Freeman Supply Co., 1152 E. Broadway, Toledo, Ohio.

The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

Hoffman Foundry Supply Co., Main & Sycamour Sts., Cleveland, Ohio. J. S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa.

The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

A. V. R. R., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th
St., Chicago, Ill.
Oiless Core Binder Co.,
Cleveland, Ohio.
Penn-Rillton Co., 539 W. 27th St.,
New York, N. Y.
Pennsylvania Foundry Supply &
Sand Co., Ashland & E. Lewis Sts.,
Philadelphia, Pa.
George F. Pettinos, Inc., 1206 Locust
St., Philadelphia, Pa.
The Smith Facing & Supply Co., 1857
Carter, Cleveland, Ohio.
Frederic B. Stevens, Inc., 3rd &
Larned Sts., Detroit, Mich.
Tamms Silica Co., 228 N. La Salle
St., Chicago, Ill.
The Titanium Alloy Mfg. Co.,
Niagara Falls, N. Y.
United States Graphite Co., 1621
Holland Ave., Saginaw, Mich.
Whitehead Bros. Co., 537 W. 27th
St., New York, N. Y.

FERRO-ALLOYS

Climax Molybdenum Co., 500 Fifth Ave., New York, N. Y. Hickman, Williams & Co., 230 N. Michigan Ave., Chicago, Ill.

The Titanium Alloy Mfg. Co., Niagara Falls, N. Y. Vanadium Corp. of America, 420 Lexington Ave., New York, N. Y.

FIRE BRICK

American Crucible Co., Shelton, Conn. Campbell-Hausfeld Co., Harrison, Ohio. Harrison, Ohio.
Chicago Retort & Fire Brick Co., 208
S. La Salle St., Chicago, Ill.
The Hill & Griffith Co., 1262 State
Ave., Cincinnati, Ohio.
Illinois Clay Products Co., 608 S.
Dearborn St., Chicago, Ill.
The S. Obermayer Co., 2563 W. 18th
St., Chicago, Ill.
Peerless Mineral Products Co. Peerless Mineral Products Co., Conneaut, Ohio.
Pyro Clay Products Co.,
Oak Hill, Ohio.
Frederic B. Stevens, Inc., 3rd &
Larned Sts., Detroit, Mich.

FLASK BUSHINGS

Black, Sivalls & Bryson, Inc., 7500 E. 10th St., Kansas City, Mo. Fremont Flask Co., Fremont, Ohio. Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

Hines Flask Co., 1324 Hird Ave.,
Cleveland, Ohio.

Pennsylvania Foundry Supply &
Sand Co., Ashland & E. Lewis Sts.,
Philadalphia Pa Philadelphia, Pa. Sterling Wheelbarrow Co., Milwaukee, Wis.

FLASK LUMBER

Dougherty Lumber Co., 4300 E. 68th St., Cleveland, Ohio. Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio. Rietz Lumber Co., 1800 N. Central Park Ave., Chicago, Ill.

American Foundry Equipment Co.,

FLASK PINS

American Foundry Equipment Co., Mishawaka, Ind.
Arcade Mfg. Co., Freeport, Ill.
Black, Sivalls & Bryson, Inc., 7500 E. 10th St., Kansas City, Mo.
Buckeye Products Co., 7020-34 Vine St., Cincinnati, Ohio.
Combined Supply & Equipment Co., Inc., 215 Chandler St., Buffalo, N. Y.
Fremont Flask Co., Fremont, Ohio.
Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio. Cincinnati, Ohio.

Hines Flask Co., 1324 Hird Ave., Cleveland, Ohio.

J. S. McCormick Co., 25th & A. V. R. R., Pittsburgh, Pa.

S. Obermayer Co., 2563 W. 18th St., Chicago, III Chicago, Ill.
Pennsylvania Foundry Supply &
Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa. Sterling Wheelbarrow Co., Milwaukee, Wis.

FLASKS

The Adams Co., 100 E. Fourth St., Dubuque, Iowa. The American Foundry Equipment Co., Mishawaka, Ind.

Arcade Mfg. Co., Freeport, Ill.
Black, Sivalls & Bryson, Inc., 7500
E. 10th St., Kansas City, Mo.
Chicago Mfg. & Distributing Co.,
1928 W. 46th St., Chicago, Ill.
Combined Supply & Equipment Co.,
Inc., 215 Chandler St., Buffalo,
New York.
Federal Foundry Supply Co., 4600
E. 71st St., Cleveland, Ohio.
The Freeman Supply Co., 1152 E.
Broadway, Toledo, Ohio.
The Fremont Flask Co., 1000 Wolfe
Ave., Fremont, Ohio. The Fremont Flask Co., 1000 Wolfe Ave., Fremont, Ohio.
The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.
Hines Flask Co., 1324 Hird Ave., Cleveland, Ohio.
J. S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.
Peerless Mineral Products Co., Conneaut. Ohio. Conneaut, Ohio.
Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.
Sterling Wheelbarrow Co.,
Milwaukee, Wis.
Frederic B. Stevens, Inc., 3rd &
Larned Sts., Detroit, Mich.

FLASKS (Snap) AND JACKETS

The Adams Co., 100 E. Fourth St., Dubuque, Iowa. The American Foundry Equipment Co., Mishawaka, Ind. Arcade Mfg. Co., Freeport, Ill. Arcade Mfg. Co., Freeport, Ill.
Buckeye Products Co., 7020-34 Vine
St., Cincinnati, O.
Chicago Mfg. & Distributing Co.,
1928 W. 46th St., Chicago, Ill.
Combined Supply & Equipment Co.,
Inc., 215 Chandler St., Buffalo,
New York.
Fanner Mfg. Co., Brookside Park,
Cleveland, Ohio.
Federal Foundry Supply Co., 4600 E. Cleveland, Ohio.
Federal Foundry Supply Co., 4600 E.
71st St., Cleveland, Ohio.
The Freeman Supply Co., 1152 E.
Broadway, Toledo, Ohio.
The Freeman Flask Co., 1000 Wolfe The Fremont Flask Co., 1000 Wolfe Ave., Fremont, Ohio.
The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.
Hines Flask Co., 1324 Hird Ave., Cleveland, Ohio.
Hoffman Foundry Supply Co., 1193 Main Ave., Cleveland, Ohio.
J. S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill. St., Chicago, Ill. ennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Pennsylvania Philadelphia, Pa.
Frederic B. Stevens, Inc., 3rd &
Larned Sts., Detroit, Mich.
The Tabor Mfg. Co., 6225 Tacony
St., Philadelphia, Pa.

FLEXIBLE SHAFT EQUIPMENT

Freeman Supply Co., Toledo, Ohio. Mall Tool Co., 7740 S. South Chicago Ave., Chicago, Ill.

FLUXES (Cupola)

Cleveland Flux Co., 1026-34 Main Ave., Cleveland, Ohio. Delhi Foundry Sand Co., Sayler Park Station, Cincinnati, Ohio.

Hickman, Williams & Co., 230 N.
Michigan Ave., Chicago, Ill.
The Hill & Griffith Co., 1262 State
Ave., Cincinnati, Ohio.
J. S. McCormick Co., 25th St. &
A. V. R. R., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th
St. Chicago, Ill. St., Chicago, Ill.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadephia.

FLUXES (Non-Ferrous)

The Ajax Metal Co., 46 Richmond St., Philadelphia, Pa. Federal Foundry Supply Co., 4600 E.
71st St., Cleveland, Ohio.
Federated Metals Div., American
Smelting & Refining Co.,
Whiting, Ind. Whiting, Ind.
The Hill & Griffith Co., 1262 State
Ave., Cincinnati, Ohio.
J. S. McCormick Co., 25th St. &
A. V. R. R., Pittsburgh, Pa.
Niagara Falls Smelting & Refining
Co., 2204 Elmwood Ave.,
Buffalo, N. Y.
The S. Obermaner Co., 2563 W. 18th The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa. Frederic B. Stevens, Inc., 3rd & Larned Sts., Detroit, Mich. Western Metal Co., 2016-2036 W. Carroll Ave., Chicago, Ill.

FLUXES (Welding)

Eutectic Welding Alloys, Inc., 40 Worth St., New York, N. Y.

FOUNDRY ENGINEERS

C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio. Edwin S. Carman, Inc., 1643 Lee Rd., Cleveland, Ohio.
Grimes Molding Machine Sales, 1429
Virginia Park, Detroit, Mich.
National Engineering Co., 549 W.
Washington Blvd., Chicago, Ill. Newaygo Engineering Co., Newaygo, Mich.

FOUNDRY SUPPLIES

Buckeye Products Co., 7020-34 Vine St., Cincinnati, Ohio.
Chicago Mfg. & Distributing Co., 1928 W. 46th St., Chicago.
Combined Supply & Equipment Co., Inc., 215 Chandler St., Buffalo, New York.
Federal Foundry Supply Co., 4600 E. 71st St., Cleveland, Ohio.
The Freeman Supply Co., 1152 E. Broadway, Toledo, Ohio.
The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.
Hoffman Foundry Supply Co., 1193 Main Ave., Cleveland, Ohio.
J. S. McCormick Co., 25th St. and A. V. R. R., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.
Pennsylvania Foundry Supply & Sand Co., Ashland & Lewis Sts., Philadelphia, Pa.

George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa. Frederic B. Stevens, Inc., 3rd & Larned Sts., Detroit, Mich. Whitehead Bros. Co., 537 W. 27th St., New York, N. Y.

FURNACES (Air)

Whiting Corp., Harvey, Ill.

FURNACES (Crucible)

The Campbell-Hausfeld Co. Harrison, Ohio. Crucible Furnace Co., Inc., Charlottesville, Va. Fisher Furnace Co., 1740 N. Kolmar Ave., Chicago, Ill. The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

J. S. McCormick Co., 25th & A.V.
R.R., Pittsburgh, Pa. Monarch Engineering and Mfg. Co., Baltimore, Md.

The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Philadelphia, Pa.

FURNACES (Electric)

Ajax Electric Co., Inc., Philadelphia, Pa.

Ajax Electric Furnace Corp., 46
Richmond St., Philadelphia, Pa.

Ajax Electrothermic Corp., Trenton, N. J.
Detroit Electric Furnace Div., Kuhlman Electric Co., Bay City, Mich.
Pittsburgh Lectromelt Furnace Corp., P. O. Box 1257, Pittsburgh, Pa.

FURNACES (Iron Pot)

Campbell-Hausfeld Co., Harrison, Ohio. Fisher Furnace Co., 1740 N. Kolmar Ave., Chicago, Ill. Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio. Monarch Engineering and Mfg. Co., Baltimore, Md.

FURNACES (Open Flame)

Campbell-Hausfeld Co., Harrison, Ohio. Fisher Furnace Co., 1740 N. Kolmar Ave., Chicago, Ill. Monarch Engineering and Mfg. Co., Baltimore, Md.

GANISTER

Alpha-Lux Co., Inc., 155 John St., New York, N. Y. Chicago Retort & Fire Brick Co., 208 S. La Salle St., Chicago, Ill. Delhi Foundry Sand Co., Sayler Park Delhi Foundry Sand Co., Sayler Park Sta., Cincinnati, Ohio. Federal Foundry Supply Co., 4600 E. 71st St., Cleveland, Ohio. Great Lakes Foundry Sand Co., 720 United Artists Bldg., Detroit, Mich. Illinois Clay Products Co., 608 S. Dearborn St., Chicago, Ill. George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa. Whitehead Bros. Co., 537 W. 27th St.. Whitehead Bros. Co., 537 W. 27th St., New York, N. Y.

GOGGLES

American Optical Co., 10 S. Wabash American Optical Co., 10 S. Wabash Ave., Chicago, Ill. Detroit Electric Furnace Div., Kuhl-man Electric Co., Bay City, Mich. Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa. Safety Clothing & Equipment Co., 7016 Euclid Ave., Cleveland, Ohio. N

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GOGGLES (Anti Fogging Chemical)

American Optical Co., 10 S. Wabash Ave., Chicago, Ill. Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa. Safety Clothing & Equipment Co., 7016 Euclid Ave., Cleveland, Ohio.

GRAPHITE PRODUCTS

American Crucible Co., 283 Canal St., American Crucible Co., 283 Canal St., Shelton, Conn.
Joseph Dixon Crucible Co.,
Jersey City, N. J.
Federal Foundry Supply Co., 4600 E.
71st St., Cleveland, Ohio.
Hill & Griffith Co., 1262 State Ave.,
Cincinnati, Ohio.
Lava Crucible Company of Pittsburgh, Wabash Bldg., Pittsburgh,
Pa. Pa.

J. S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa.
The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.
Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.
George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa.
The Smith Facing & Supply Co., 1857 Carter, Cleveland, Ohio.
Frederic B. Stevens, Inc., 3rd & Larned Sts., Detroit, Mich.
United States Graphite Co., 1621 Holland Ave., Saginaw, Mich. Holland Ave., Saginaw, Mich. Vesuvius Crucible Co., Swissvale, Pa.

GRAPHITE STOPPER HEADS

Joseph Dixon Crucible Co., Jersey City, N. J.
Electro Refractories & Alloys Corp.,
Andrews Bldg., Buffalo, N. Y.
Lava Crucible Co. of Pittsburgh,
Pittsburgh, Pa.
Vesuvius Crucible Co., Swissvale, Pa.

GRINDERS (Belt)

Adolph I. Buehler, 228 N. La Salle St., Chicago, Ill. Porter-Cable Machine Co., Syracuse, N. Y.

GRINDERS (Disc)

Freeman Supply Co., 1152 Broadway, Toledo, Ohio.
Kindt-Collins Co., 12697 Elmwood
Ave., Cleveland, Ohio.

GRINDERS (Flexible Shaft)

Freeman Supply Co., 1152 E. Broadway, Toledo, Ohio.

Mall Tool Co., 7740 S. South Chicago Ave., Chicago, Ill. Martindale Electric Co., Box 617, Edgewater Br., Cleveland, Ohio.

GRINDERS (Hand Held)

Kindt-Collins Co., 12651 Elmwood Ave., Cleveland, Ohio. Rotor Tool Co., 17325 Euclid Ave., Cleveland, Ohio.

GRINDERS (Spindle)

Porter-Cable Machine Co., Syracuse, N. Y.

GRINDERS (Swing Frames)

Freeman Supply Co., Toledo, Ohio. Jefferson Machine Tool Co., 4th, Cutter & Sweeney Sts., Cincinnati, Ohio.

GRINDING WHEELS

Bay State Abrasive Products Co., Westboro, Mass. Westboro, Mass.
Electro Refractories & Alloys Corp., 662 Andrews Bldg., Buffalo, N. Y. Macklin Co., Jackson, Mich.
Mall Tool Co., 7740 S. South Chicago Ave., Chicago, Ill.
Martindale Electric Co., Box 617, Edgewater Br., Cleveland, Ohio.
Mid-West Abrasive Co., 2189 Beaufait Ave., Detroit, Mich.
Sterling Grinding Wheel Div., Cleveland Quarries Co., Tiffin, Ohio.

HAMMERS (Pneumatic and Electric)

Syntron Co., Homer City, Pa.

HEAT TREATING FURNACES (Electric)

Ajax Electric Co., Inc., Philadelphia, Pa. Despatch Oven Co., Minneapolis, Minn.

HEAT TREATING FURNACES (Oil or Gas)

Mahr Mfg. Co., Div. Diamond Iron Works, Minneapolis, Minn. Despatch Oven Co., Minneapolis, Minn.

HEATERS (Air)

Despatch Oven Co., Minneapolis, Minn. Foundry Equipment Co., 1831 Columbus Rd., Cleveland, Ohio.

HEATERS (Ladle and Mold)

Campbell-Hausfeld Co., Harrison, Ohio. Foundry Equipment Co., 1831 Columbus Rd., Cleveland, Ohio. Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio. J. S. McCormick Co., 25th & A. V. R. R., Pittsburgh, Pa. Monarch Engineering and Mfg. Co.,

Baltimore, Md.

HELMETS (Blasting)

American Foundry Equipment Co., Mishawaka, Ind. MISHAWARA, Ind.
American Optical Co., 10 S. Wabash
Ave., Chicago, III.
The Hill & Griffith Co., 1262 State
Ave., Cincinnati, Ohio
J. S. McCormick Co., 25th St. & Ave., Cincinnati, Ohio
J. S. McCormick Co., 25th St. &
A. V. R. R., Pittsburgh, Pa.
Mine Safety Appliances Co.,
Braddock, Thomas & Meade Sts.,
Pittsburgh, Pa.
Pangborn Corp., Hagerstown, Md.
Parsons Engineering Corp., 3599 E.
82nd St., Cleveland, Ohio
Pennsylvania Foundry Supply & Sand
Co., Ashland & E. Lewis Sts.,
Philadelphia, Pa.
Safety Clothing & Equipment Co., Finladelphia, Pa.
Safety Clothing & Equipment Co.,
7016 Euclid Ave., Cleveland, Ohio.
The W. W. Sly Mfg. Co., 4700 Train
Ave., Cleveland, Ohio.

HELMETS (Welding)

American Optical Co., 10 S. Wabash American Optical Co., 10 S. Wabash Ave., Chicago, Ill. Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa. Safety Clothing & Equipment Co., 7016 Euclid Ave., Cleveland, Ohio.

HOISTS (Chain)

Conco Engineering Works, Div. of H. D. Conkey & Co., Mendota, Ill. Modern Equipment Co., Port Washington, Wis. Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia, Pa.

HOISTS (Electric)

Conco Engineering Works, Div. of H. D. Conkey & Co., Mendota, Ill. Modern Equipment Co., Port Washington, Wis. Walker Mfg. Co., Racine, Wis.
Whiting Corp., Harvey, Ill.
Yale & Towne Mfg. Co., 4530 Tacony
St., Philadelphia, Pa.

HOSE (Pneumatic)

. Schrader's Son, 470 Vanderbilt Ave., Brooklyn, N. Y.

INGOTS (Non-Ferrous)

The Ajax Metal Co., 46 Richmond The Ajax Metal Co., 46 Richmond St., Philadelphia, Pa. L. A. Cohn & Bro., Inc., 5429 W. Roosevelt Rd., Chicago, Ill. Duquesne Smelting Corp., 50—33rd St., Pittsburgh, Pa. Federated Metals Div., American Smelting & Refining Co., Whiting, Ind. Ind.

Frontier Bronze Corp., Niagara Falls, N. Y.

Benjamin Harris & Co., 11th & State Sts., Chicago Heights, Ill.

H. Kramer & Co., 21st & Loomis Sts., Chicago, Ill.

R. Lavin & Sons, Inc., 3426 S. Kedzie Ave., Chicago, Ill.

Michigan Smelting & Refining Co., 1400 Lafayette Bldg., Detroit, Mich. Niagara Falls Smelting & Refining Corp., 2204 Elmwood Ave., Buffalo, N. Y.

U. S. Reduction Co., East Chicago, Ind.

Western Metal Co., 2016-2036 W. Carroll Ave., Chicago, Ill.

INSULATION (Furnace)

American Crucible Co., Shelton, Conn. Federal Foundry Supply Co., 4600 E. 71st St., Cleveland, Ohio. Illinois Clay Products Co., 608 S. Dearborn St., Chicago, Ill. George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa. F. E. Schundler & Co., Joliet, Ill.

LABORATORY AND SCIENTIFIC **EQUIPMENT**

Adolph I. Buehler, 228 N. La Salle St., Chicago, Ill. Despatch Oven Co., Minneapolis, Minn. Harry W. Dietert Co., 9330 W. Rose-lawn Ave., Detroit, Mich. Riehle Testing Machine Div., American Machine & Metals Inc., East Moline, Ill.

LADLE LININGS (Fitted)

American Crucible Co., Shelton, Conn. Chicago Retort & Fire Brick Co., 208 S. La Salle St., Chicago, Ill. Joseph Dixon Crucible Co., Jersey City, N. J.
Ironton Fire Brick Co.,
Ironton, Ohio.
Lava Crucible Co. of Pittsburgh, Pittsburgh, Pa.

Pennsylvania Foundry Supply & Sand
Co., Ashland & E. Lewis Sts.,
Philadelphia, Pa.

LADLE LININGS (Plastic)

Alpha-Lux Co., Inc., 155 John St., New York, N. Y. American Crucible Co., Shelton, Conn. Chicago Retort & Fire Brick Co., 208 S. La Salle St., Chicago, Ill. Joseph Dixon Crucible Co., Jersey City, N. J. Ironton Fire Brick Co., Ironton, Ohio. Lava Crucible Co. of Pittsburgh, Pittsburgh, Pa. S: Obermayer Co., 2563 W. 18th St., Chicago, Ill. Chicago, III.

Ramtite Co., Div. of S. Obermayer
Co., 2563 W. 18th St., Chicago, Ill.
George F. Pettinos, Inc., 1206 Locust
St., Philadelphia, Pa.
F. E. Schundler & Co., Inc.,
Joliet, Ill. United States Graphite Co., Saginaw, Mich.

LADLES

The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

J. S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa.

Modern Equipment Co., Port Washington, Wis.

The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

Frederic B. Stevens, Inc., 3 Larned Sts., Detroit, Mich.

The Tabor Mfg. Co., 6225 Tacony St., Philadelphia, Pa.

Whiting Corp., Harvey, Ill.

MAGNETIC SEPARATORS

O. Bartlett & Snow Co., 62. Harvard Ave., Cleveland, Ohio. Tabor Mfg. Co., 6225 Tacony St., Philadelphia, Pa.

MATCHPLATES

Freeman Supply Co., 1152 E. Broadway, Toledo, Ohio.

Kindt-Collins Co., 12651 Elmwood Ave., Cleveland, Ohio.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

Scientific Cast Products Corp., 1390 E. 40th St., Cleveland, Ohio.

Springfield Aluminum Plate & Castings Co., Springfield, Ohio.

Tamms Silica Co., 228 N. La Salle St., Chicago, Ill.

MATCHPLATES (Pressure Cast)

Scientific Cast Products Corp., 1390 E. 40th St., Cleveland, Ohio.

MATERIAL HANDLING EQUIPMENT

O. Bartlett & Snow Co., 62 Harvard Ave., Cleveland, Ohio.

Clearfield Machine Co., Clearfield, Pa.

Mathews Conveyer Co., Ellwood City, Pa.

National Engineering Co., 549 W. Washington Blvd., Chicago, Ill.

Newaygo Engineering Co., Newaygo, Mich.

Robins Conveying Belt Co., Passaic, N. J.

Syntron Co., Homer City, Pa.

METALLOGRAPHIC EQUIPMENT

Adolph I. Buehler, 228 N. La Salle St., Chicago, Ill.

METERS (Air Velocity)

Illinois Testing Laboratories, Inc., 420 N. La Salle St., Chicago, Ill.

MICROSCOPES

American Optical Co., 10 S. Wabash Ave., Chicago, Ill.

Adolph I. Buehler, 228 N. La Salle St., Chicago, Ill.

MOISTURE TESTER (Sand)

Alpha-Lux Co., Inc., 155 John St., New York, N. Y. Harry W. Dietert Co., 9330 W. Rose-lawn Ave., Detroit, Mich. J. S. McCormick Co., 25th St. & A.V. R.R., Pittsburgh, Pa.

MOLD CONVEYORS

C. O. Bartlett & Snow Co., 67 Harvard Ave., Cleveland, Ohio. Mathews Conveyer Co., Ellwood City, Pa. National Engineering Co., 549 W. Washington Blvd., Chicago, Ill., Newaygo Engineering Co., Newaygo, Mich. Standard Conveyor Co., North St. Paul, Minn.

MOLD OVENS AND DRYERS

Despatch Oven Co., Minneapolis, Minn. Foundry Equipment Co., 1831 Columbus Rd., Cleveland, Ohio.

J. S. McCormick Co., 25th St. & A.V. R.R., Pittsburgh, Pa. Mahr Mfg. Co., Div. Diamond Iron Works, Inc., Minneapolis, Minn.

MOLDING MACHINES

The Adams Co., 100 E. Fourth St., Dubuque, Iowa. Arcade Mfg. Co., Freeport, Ill. Champion Foundry & Machine Co., 1314 W. 21st St., Chicago, Ill.

Davenport Machine & Foundry Co., Davenport, Iowa. Grimes Molding Machine Sales, 1429 Virginia Park, Detroit, Mich.

Herman Pneumatic Machine Co., 1806 Union Bank Bldg., Pittsburgh, Pa. International Molding Machine Co., 2608-2624 W. 16th St., Chicago, Ill.

The Johnston & Jennings Co., Addison Road, Cleveland, Ohio.

Milwaukee Foundry Equipment Co., 3238 W. Pierce St., Milwaukee, Wis.
Wm. H. Nicolls, Inc., 89-27 126th St., Richmond Hill, Long Island, N. Y. The Osborn Mfg. Co., 5401 Hamilton Ave., Cleveland, Ohio.

SPO, Inc., 6115 Waterman Ave., Cleveland, Ohio.

The Tabor Mfg. Co., 6225 Tacony St., Philadelphia, Pa.

MONORAIL & TRAMRAIL SYSTEMS

Conco Engineering Works, Div. of H. D. Conkey & Co., Mendota, Ill. Modern Equipment Co., Port Washington, Wis. Republic Structural Iron Works, 1290 E. 53rd St., Cleveland, Ohio.

NOZZLES (Sand Blast)

The American Foundry Equipment Co., Mishawaka, Ind.

Delhi Foundry Sand Co., Sayler Park Station, Cincinnati, Ohio. Fanner Mfg. Co., Brookside Park, Cleveland, Ohio.

The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

Hydro-Blast Corp., 3118 Clybourn Ave., Chicago, Ill.

Pangborn Corp., Hagerstown, Md. Parsons Engineering Corp., 3589 E. 82nd St., Cleveland, Ohio.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa.

The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland, Ohio. The Tabor Mfg. Co., 6225 Tacony

St., Philadelphia, Pa.

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OILS (Lubricating)

Delta Oil Products Co., Milwaukee, Wis.

. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

Penola, Inc., 34th & Smallman Sts., Pittsburgh, Pa.

Smith Oil & Refining Co., Rockford, Ill.

Swan-Finch Oil Corp., 201 N. Wells St., Chicago, Ill.

OVENS

(Annealing and Heat Treating)

Despatch Oven Co., Minneapolis, Minn. Foundry Equipment Co., 1831 Columbus Rd., Cleveland, Ohio. Mahr Mfg. Co., Div. Diamond Iron Works, Inc., Minneapolis, Minn.

Monarch Engineering and Mfg. Co., Baltimore, Md.

Whiting Corp., Harvey, Ill.

PAINTS (Metal Protective)

Penola, Inc., 34th & Smallman Sts., Pittsburgh, Pa. United States Graphite Co., 1621 Holland Ave., Saginaw, Mich.

PATTERN COATINGS

The Freeman Supply Co., 1152 E. Broadway, Toledo, Ohio. The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio. The Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio. S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa. Smith Oil & Refining Co., Rockford, Ill.

PATTERN COMPOUND

Tamms Silica Co., 228 N. La Salle St., Chicago, Ill.

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Dougherty Lumber Co., 4300 E. 68th St., Cleveland, Ohio.

Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio.

Rietz Lumber Co., 1800 N. Central Park Ave., Chicago, Ill.

PATTERN PLATE WELDING

Eutectic Welding Alloys, Inc., 40 Worth St., New York, N. Y.

PATTERN PLATES

Combined Supply & Equipment Co., Inc., 215 Chandler St., Buffalo, New York.

The Freeman Supply Co., 1152 E. Broadway, Toledo, Ohio. The Hill & Griffith Co., 1262 State

Ave., Cincinnati, Ohio.

The Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio.

Marathon Chemical Co., Div. of Marathon Paper Mills Co., Rothschild, Wis.

S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa.

George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa.

Springfield Aluminum Plate & Castings Co., Springfield, Ohio.

PATTERN SHOP EQUIPMENT AND SUPPLIES

Combined Supply & Equipment Co., Inc., 215 Chandler St., Buffalo, Inc., 215 New York.

De Walt Products Corp., Lancaster, Pa.

Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio.

J. S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa.

Oliver Machinery Co., Grand Rapids, Mich.

J. D. Wallace & Co., 134 S. California Ave., Chicago, Ill.

PATTERNS

SPO, Inc., 6115 Waterman Ave., Cleveland, Ohio.

Springfield Aluminum Plate & Castings Co., Springfield, Ohio.

PIG IRON

Hickman, Williams & Co., 23 Michigan Ave., Chicago, Ill. 230 N.

PIG IRON (Alloy)

Hickman, Williams & Co., 23 Michigan Ave., Chicago, Ill. 230 N.

PNEUMATIC TOOLS

Master Tool Co., Inc., 5605 Herman

Ave., Cleveland, Ohio.
Rotor Tool Co., 17325 Euclid Ave.,
Cleveland, Ohio.

JUNE, 1942

PORTABLE TOOLS (Air)

Master Tool Co., Inc., 5605 Herman Ave., Cleveland, Ohio.

Rotor Tool Co., 17325 Euclid Ave., Cleveland, Ohio.

PORTABLE TOOLS (Electric)

Anderson & Brown, 2034 E. 22nd St., Cleveland, Ohio.

Mall Tool Co., 7740 South Chicago Ave., Chicago, Ill.

Martindale Electric Co., Box 617, Edgewater Br., Cleveland, Ohio.

Porter-Cable Machine Co., Syracuse, N. Y.

Rotor Tool Co., 17325 Euclid Ave., Cleveland, Ohio.

Syntron Co., Homer City, Pa. J. D. Wallace & Co., 134 S. California Ave., Chicago, Ill.

POWDERED COAL EQUIPMENT

Syntron Co., Homer City, Pa. Whiting Corp., Harvey, Ill.

POWER TRANSMITTING EQUIPMENT

Dodge Mfg. Corp., Mishawaka, Ind.

POWER UNITS (Gasoline)

Syntron Co., Homer City, Pa.

PUBLICATIONS

American Metal Market, 111 John St., New York, N. Y.

Business Publishers International Corp., 330 W. 42nd St., New York, N. Y.

The Foundry, 1213 W. Third Ave., Cleveland, Ohio.

Metal Progress (A.S.M.), 7301 Euclid Ave., Cleveland, Ohio.

Metals & Alloys, 330 W. 42nd St., New York, N. Y.

Safety Engineering, 75 Fulton St., New York, N. Y.

PUMPS

Fisher Furnace Co., 1740 N. Kolmar Ave., Chicago, Ill.

PYROMETERS

Detroit Electric Furnace Div., Kuhl-man Electric Co., Bay City, Mich. Illinois Testing Laboratories, Inc., 420 N. La Salle St., Chicago, Ill.

Pyrometer Instrument Co., 103 Lafayette St., New York, N. Y.

Tamms Silica Co., 228 N. La Salle St., Chicago, Ill.

PYROMETERS (Immersion)

Detroit Electric Furnace Div., Kuhlman Electric Co., Bay City, Mich. Illinois Testing Laboratories, Inc., 420 N. La Salle St., Chicago, Ill.

Pyrometer Instrument Co., 103 Lafayette St., New York, N. Y. Tamms Silica Co., 228 N. La Salle St., Chicago, Ill.

PYROMETERS (Optical)

Adolph I. Buehler, 228 N. La Salle St., Chicago, Ill.

Detroit Electric Furnace Div., Kuhl-man Electric Co., Bay City, Mich.

Pyrometer Instrument Co. 103 Lafayette St., New York, N. Y.

RADIUM

Radium Chemical Co., Inc., 570 Lexington Ave., New York, N. Y. Canadian Radium & Uranium Corp., 630 Fifth Ave., New York, N. Y.

RAMMERS (Pneumatic)

Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

Master Tool Co., 5605 Herman Ave., Cleveland, Ohio.

REFRACTORIES

Alpha-Lux Co., Inc., 155 John St., New York, N. Y.

American Crucible Co., 283 Canal St., Shelton, Conn.

Buckeye Products Co., 7020-34 Vine St., Cincinnati, Ohio.

Campbell-Hausfeld Co., Harrison, Ohio.

Chicago Retort & Fire Brick Co., 208 S. La Salle St., Chicago, Ill.

The Cleveland Quarries Co., 1125 Builders Exchange, Cleveland, Ohio.

Detroit Electric Furnace Div., Kuhlman Electric Co., Bay City, Mich.

Joseph Dixon Crucible Co., Jersey City, N. J.

Electro Refractories & Alloys Corp., 662 Andrews Bldg., Buffalo, N. Y.

Great Lakes Foundry Sand Co., United Artists Bldg., Detroit, Mich.

Illinois Clay Products Co., 608 S. Dearborn St., Chicago, Ill.

Ironton Fire Brick Co., Ironton, Ohio.

Lava Crucible Company of Pitts-burgh, Wabash Bldg., Pittsburgh, Pa.

Peerless Mineral Products Co., Conneaut, Ohio.

George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa.

Pyro Clay Products Co., Oak Hill, Ohio.

Ramtite Co., Div. of S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Frederic B. Stevens, Inc., 3rd & Larned Sts., Detroit, Mich.

The Titanium Alloy Mfg. Co., Niagara Falls, N. Y.

United States Graphite Co., 1621 Holland Ave., Saginaw, Mich. Vesuvius Crucible Co., Swissvale, Pa.

RESPIRATORS

American Optical Co., 10 S. Wabash Ave., Chicago, Ill.

The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

Martindale Electric Co., Box 617, Edgewater Br., Cleveland, Ohio.

Mine Safety Appliances Co., Braddock, Thomas and Meade Sts., Pittsburgh, Pa.

The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Pangborn Corp., Hagerstown, Md. Parsons Engineering Corp., 3599 E. 82nd St., Cleveland, Ohio.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

Safety Clothing & Equipment Co., 7016 Euclid Ave., Cleveland, Ohio.

RIDDLES AND SCREENS (Power)

Champion Foundry & Machine Co., 1314 W. 21st St., Chicago, Ill.

Chicago Mfg. & Distributing Co., 1928 W. 46th St., Chicago, Ill.

Federal Foundry Supply Co., 4600 E. 71st St., Cleveland, Ohio.

Great Western Mfg. Co., Leavenworth, Kan.

Grimes Molding Machine Sales, 1429 Virginia Park, Detroit, Mich.

Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.

Jefferson Machine Tool Co., 4th, Cutter & Sweeney Sts., Cincinnati, Ohio.

S. McCormick Co., 25th St. & A. V. R. R., Pittsburgh, Pa.

The S. Obermayer Co., 2563 W. 18th St., Chicago, Ill.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

Robins Conveying Belt Co., Passaic, N. J.

Seymour & Peck Co., 565 W. Washington Blvd., Chicago, Ill.

Simplicity Engineering Co., Durand, Mich.

Frederic B. Stevens, Inc., 3rd & Larned Sts., Detroit, Mich.

SAFETY CLOTHING AND EQUIPMENT

American Optical Co., 10 S. Wabash Ave., Chicago, Ill.
The Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio.
J. S. McCormick Co., 25th St. & A.V. R.R., Pittsburgh, Pa.
Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa.
Pangborn Corp., Hagerstown, Md.
Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

Philadelphia, Pa.

Safety Clothing & Equipment Co., 7016 Euclid Ave., Cleveland, Ohio. Frederic B. Stevens, Inc., 3rd & Larned Sts., Detroit, Mich.

SAFETY SHOES

Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio. Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa.

Frederic B. Stevens, Inc., 3rd & Larned Sts., Detroit, Mich.

Harry J. Wolf Shoe Co., Sheboygan, Wis.

SAND (Blast)

Albany Sand & Supply Co., Albany, N. Y.

Delhi Foundry Sand Co., Sayler Park Station, Cincinnati, Ohio.

Great Lakes Foundry Sand Co., 720 United Artists Bldg., Detroit, Mich.

Hoffman Foundry Supply Co., 1193 Main Ave., Cleveland, Ohio.

New Jersey Silica Sand Co.,
Millville, N. J.
Pangborn Corp., Hagerstown, Md.
Parsons Engineering Corp., 3589 E.
82nd St., Cleveland, Ohio.
Peerless Mineral Products Co.,

Peerless Mineral Products Co., Conneaut, Ohio. George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa. Taggart & Co., 6225 Tacony St., Philadelphia, Pa. Tamms Silica Co., 228 N. La Salle St., Chicago, Ill

Chicago, III.
Whitehead Bros. Co., 537 W. 27th St.,
New York, N. Y.

SAND (Core)

Albany Sand & Supply Co., Albany, N. Y. The Ayers Mineral Co.,

Zanesville, Ohio.

Delhi Foundry Sand Co., Sayler Park Station, Cincinnati, Ohio. Great Lakes Foundry Sand Co.,

United Artists Bldg.,
Detroit, Mich.
Hoffman Foundry Supply Co.,
1193 Main Ave., Cleveland, Ohio.
Hougland & Hardy Inc.,
Evansville, Ind.
New Jersey Silica Sand Co.,
Millville, N. J.
Peerless Mineral Products Co.,
Conneant Ohio

Conneaut, Ohio.

Conneaut, Ohio.

Pennsylvania Foundry Supply & Sand Co., Ashland & E. Lewis Sts., Philadelphia, Pa.

George F. Pettinos, Inc., 1206 Locust St., Philadelphia, Pa.

Sand Products Corp., 2489 National Bank Bldg., Detroit, Mich.

Superior Sand Corp., Massillon, Ohio.

Taggart & Co., 6225 Tacony St., Philadelphia, Pa.

The Titanium Alloy Mfg. Co., Niagara Falls, N. Y.

Whitehead Bros. Co., 537 W. 27th St., New York, N. Y.

Zanesville Sand Co., Zanesville, Ohio.

Zanesville, Ohio.

SAND (Molding)

Albany Sand & Supply Co., Albany, N. Y. The Ayers Mineral Co.,

Zanesville, Ohio.

Delhi Foundry Sand Co., Sayler Park Station, Cincinnati, Ohio. Great Lakes Foundry Sand Co.,

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Great Lakes Foundry Sand Co.,
United Artists Bldg.,
Detroit, Mich.
Hoffman Foundry Supply Co.,
1193 Main Ave., Cleveland, Ohio.
Hougland & Hardy, Inc.,
Evansville, Ind.
Industrial Minerals Co.,

Lancaster, Ohio.

New Jersey Silica Sand Co.,
Millville, N. J.

Peerless Mineral Products Co.,

Peerless Mineral Products Co.,
Conneaut, Ohio.
Pennsylvania Foundry Supply & Sand
Co., Ashland & E. Lewis Sts.,
Philadelphia, Pa.
George F. Pettinos., Inc., 1206 Locust
St., Philadelphia, Pa.
Superior Sand Corp., Massillon, Ohio.

Superior Sand Corp., Massillon, Ohio.
Taggart & Co., 6225 Tacony St.,
Philadelphia, Pa.
The Titanium Alloy Mfg. Co.,
Niagara Falls, N. Y.
Whitehead Bros. Co., 537 W. 27th St.,
New York, N. Y.
Zanesville Sand Co.,
Zanesville Ohio. Zanesville, Ohio.

SAND (Silica)

Albany Sand & Supply Co.,
Albany, N. Y.
Ayers Mineral Co., Zanesville, Ohio.
Cleveland Quarries Co.,
1125 Builders Exchange, Cleveland, Ohio.

Delhi Foundry Sand Co., Sayler Park Station, Cincinnati, Ohio. Great Lakes Foundry Sand Co., 720 United Artists Bldg.,

720 United Artists Bldg.,
Detroit, Mich.
Hoffman Foundry Supply Co.,
1193 Main Ave., Cleveland, Ohio.
Hougland & Hardy, Inc.,
Evansville, Ind.
Industrial Silica Corp.,
Youngstown, Ohio.

Youngstown, Ohio.

New Jersey Silica Sand Co.,
Millville, N. J.

Peerless Mineral Products Co.,
Conneaut, Ohio.

George F. Pettinos, Inc., 1206 Locust
St., Philadelphia, Pa.

Taggart & Co., 6225 Tacony St.,
Philadelphia, Pa.

Tamms Silica Co., 228 N. LaSalle St.,
Chicago. Ill.

Chicago, Ill.
Whitehead Bros. Co., 537 W. 27th St.,
New York, N. Y.
Zanesville Sand Co.,

Zanesville, Ohio.

SAND CONTROL AND TESTING EQUIPMENT

Baker Perkins, Inc., Saginaw, Mich. Harry W. Dietert Co., 9330 W. Rose-lawn Ave., Detroit, Mich. Great Western Mfg. Co., Leavenworth, Kansas.

SAND DRYERS

O. Bartlett & Snow Co., Harvard Ave., Cleveland, Ohio.

Hill & Griffith Co., 1262 State Ave., Cincinnati, Ohio. Hydro-Blast Corp., 3118 Clybourn Ave., Chicago, Ill.
Lancaster Iron Works, Inc.,
Lancaster, Pa.
Pangborn Corp., Hagerstown, Md.
Whiting Corp., Harvey, Ill.

SAND HANDLING AND CONDITIONING EQUIPMENT

The American Foundry Equipment Co., Mishawaka, Ind. Baker Perkins, Inc., Saginaw, Mich. The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio. Harvard Ave., Cleveland, Ohio. Clearfield Machine Co., Clearfield, Pa. Federal Foundry Supply Co., 4600 E. 71st St., Cleveland, Ohio. Great Western Mfg. Co., Leavenworth, Kansas. Grimes Molding Machine Sales, 1429 Virginia Park, Detroit, Mich. National Engineering Co., 549 W. Washington Blvd., Chicago. Ill. 549 W. Washington Blvd., Chicago, Ill.
Newaygo Engineering Co., Newaygo, Mich.
Productive Equipment Co., 4600 S.
Kedzie Ave., Chicago, Ill.
Robins Conveying Belt Co., Passaic, N. J.
Royer Foundry & Machine Co., Kingston, Pa. Royer Foundry & Machine Kingston, Pa.
Simplicity Engineering Co.,
Durand, Mich.
Standard Sand & Machine Co.,
549 W. Washington Blvd., Chicago, Ill. Syntron Co., Homer City, Pa.

SAND MIXERS

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The American Foundry Equipment The American Foundry Equipment Co., Mishawaka, Ind.
Baker Perkins Inc., Saginaw, Mich.
The Blystone Corp.,
Cambridge Springs, Pa.
Clearfield Machine Co., Clearfield, Pa.
Grimes Molding Machine Sales, 1429
Virginia Park, Detroit, Mich.
Lancaster Iron Works, Inc.,
Lancaster Pa Lancaster, Pa. National Engineering Co., 549 W. Washington Blvd., Chicago, Ill. Royer Foundry & Machine Co., Kingston, Pa. Standard Sand & Machine Co., 549 W. Washington Blvd., Chicago, Ill.

SANDBLAST EQUIPMENT

The American Foundry Equipment Co., Mishawaka, Ind. Co., Mishawaka, Ind.
Hydro-Blast Corp., 3118 Clybourn
Ave., Chicago, Ill.
Pangborn Corp., Hagerstown, Md.
Parsons Engineering Corp., 3599 E.
82nd St., Cleveland, Ohio.
The W. W. Sly Mfg. Co., 4700 Train
Ave., Cleveland, Ohio.
The Tabor Mfg. Co., 6225 Tacony
St., Philadelphia, Pa.

SANDING MACHINES (Belt)

Jefferson Machine Tool Co., 4th, Cutter and Sweeney Sts., Cincinnati, Ohio.

Oliver Machinery Co., Grand Rapids, Mich. Kindt-Collins Co., 12651 Elmwood Ave., Cleveland, Ohio. Porter-Cable Machine Co., Syracuse, N. Y.

SAWS (Band)

Freeman Supply Co., Toledo, Ohio. Grob Bros., Grafton, Wis. Kindt-Collins Co., 12697 Elmwood Ave., Cleveland, Ohio. Oliver Machinery Co., Grand Rapids, Mich. J. D. Wallace & Co., 134 S. California Ave., Chicago, Ill.

SAWS (Metal Cutting)

DeWalt Products Corp., Lancaster Pa. Freeman Supply Co., Toledo, Ohio. Grob Brothers, Grafton, Wis. Oliver Machinery Co.,
Grand Rapids, Mich.
Tabor Mfg. Co., 6225 Tacony Ave.,
Philadelphia, Pa.
J. D. Wallace & Co., 134 S. California Ave., Chicago, Ill.

SCALES (Charging)

Toledo Scale Co., Toledo, Ohio.

SCALES (Weighing)

Kron Co., Bridgeport, Conn. Toledo Scale Co., Toledo, Ohio.

SHAKE-OUT MACHINERY

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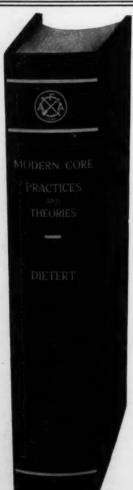
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